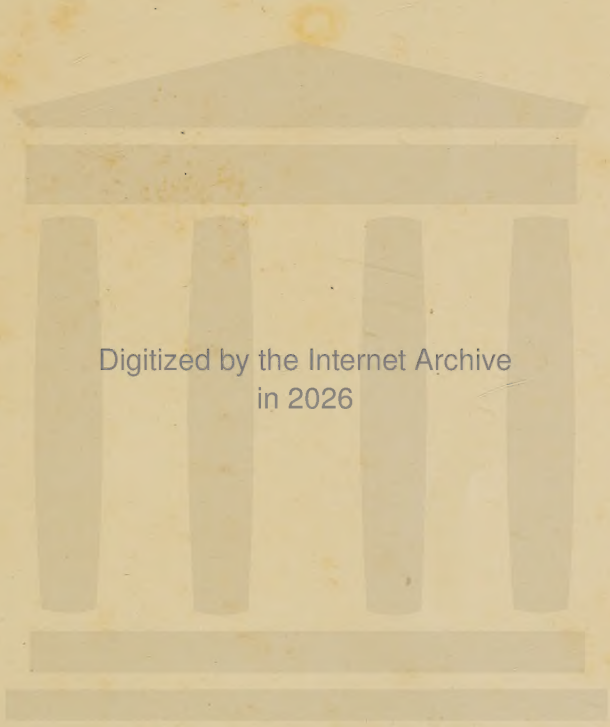
A GEOGRAPHICAL READER

BY

JAMES JOHONNOT



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A

GEOGRAPHICAL READER.

COMPILED AND ARRANGED BY

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AUTHOR OF

"COUNTRY SCHOOL-HOUSES," "PRINCIPLES AND PRACTICE OF TEACHING,"

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PREFACE.

The result of numerous experiments has shown that the ability to read may be acquired incidentally while the attention is primarily directed to some subject of thought. The philosophy that explains this result also indicates the general method to be pursued. At each stage of development such subject-matter is to be brought before the learner as constitutes the best aliment for the mind's growth at the time, and, when books are used, this subject-matter is to be presented in an attractive literary form. The food should be palatable as well as nutritious. In the processes of receiving, assimilating, and expressing the thoughts contained in these literary productions, pupils, without direct and conscious effort, learn to read, to write, and to spell, and to tell what they have learned both orally and in writing.

It is of prime moment that reading exercises should be adapted to the condition of the pupil's mind at each period of growth; that the subject-matter should be both intelligible and interesting; and that the modes of expression be such as will constitute appropriate models of style, and will awaken sensibilities in the direction of literary excellence. One method of securing these desirable lessons is by the use of reading-books that treat of the top-

ics upon which the pupils are engaged in study at the time—the additional and attractive details of the reading exciting a greater interest in the study.

Every subject in school may be presented in outline or in detail. Text-books are necessarily in outline. To fill them up with detail would be to make them too bulky and too costly for use. But all children love stories. The detail to them is the interesting part. They are intent upon finding the *what* first, and the *how* and *why* afterward.

The ordinary reading-lessons furnished pupils treat of subjects which have little or no relation to the studies pursued. From an unwise promotion in classes these lessons are frequently above the comprehension of pupils both in thought and expression, and reading of necessity becomes a merely mechanical process. The pronunciation of words is substituted for a natural and intelligent expression of ideas.

This volume has been compiled to furnish thought-reading to pupils while engaged upon the study of geography. Its aim is to furnish supplementary reading in a single line of study. The articles selected treat of geographical topics in detail. The order of the topics is the same as is found in any well-arranged text-book on the subject. One or more illustrative descriptions are given in each general division, and the special lesson should be read when the same general topic is studied.

The objects which may be attained by the use of this book are briefly as follows:

First. The lessons are read for the matter which they contain, the process of reading becoming so nearly unconscious that a natural delivery is the almost inevitable result.

Second. The selections made give to the pupil valuable specific information, and awaken in him an interest in both the facts and in the philosophy of geographical phenomena.

Third. Each lesson read may be taken as a topic for discussion in the class, leading to further investigation on the part of the pupils, and to further instruction on the part of the teacher.

Fourth. The pupils may be called upon to reproduce the thoughts of each lesson in their own language, forming a valuable exercise in topical recitation or in written composition.

Fifth. By means of the interest in the lessons, the pupils are incited to more extensive reading, and new worlds of thought are opened to their view.

Sixth. The books mentioned in connection with the extracts made become a guide to the pupil in future study and investigation.

Seventh. By a judicious use of this and similar books, the pupils gradually form habits of observation, reading, and thinking, which serve as a protection against the attraction of bad books, and as an introduction into all that is noblest and best in literature.

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GEOGRAPHICAL READER.

PART I.

MOUNTAINS AND GLACIERS.

GLACIERS OF THE ALPS.

1. Mer de Glace.—This mountain (Montagne Vert) is very steep and rocky. It is exceedingly incumbered with its own immense ruins, which in the course of ages have rolled down from its summit and lodged either at its base or on its flanks. There are piles on piles of rocks, and some of them are of great dimensions, among which to clear even a mule-path has evidently been a work of great labor and difficulty. The zigzag ascent winds around turns which are very abrupt and frequent. They often pass along the edge of fearful precipices, where a false step would send the mule and the rider to destruction.

2. The ascent occupied two hours and a half, when we arrived at the hotel near the top of the mountain, which falls but a few hundred feet short of being as high as Mount Washington ; our position enabled us to look down upon the Mer de Glace, and, being furnished each with an alpenstock, we cautiously descended the bank of the mountain, which inclines down a gentle slope to the sea of ice.

3. Arrived upon its immense and cold bosom, we looked eagerly around and saw that it was indeed a sea of ice, or,

rather, it is like a great river suddenly congealed in the midst of a tempest. By a little practice with our poles, pointed with iron, we acquired confidence, and made excursions in various directions.

4. This glacier is, indeed, a wonder. From the mountain-top it descends more than twenty miles, and has an extent, as our guide assured us, of more than fifty, if all the ramifications are included; it reaches quite down into the valley of Chamouni. The breadth of this glacier, in that portion which was under our immediate inspection, is from half a mile to a mile. It is, at present, much divided by cross-fissures or crevasses, which grow more numerous as the season advances. The glacier, by moving downward at the rate of more than a foot in a day, is impeded by the rocky bottom, and as the ice, thus hooked and grappled by the pointed rocks, hangs there in opposition to gravity, which is constantly urging the mass downward, it cracks, forming those open fissures which the French call *crevasses*.

5. An intelligible description of a glacier is not an easy thing. It is not, as one might suppose, a smooth, glassy surface, like a quiet, congealed lake; possibly, in the very elevated regions, it may have that appearance, but in these lower regions it is a continuous series of masses, connected, indeed, below, but so separated above by the fissures that the portions appear like vast white rocks—white originally, but the fine fragments and dust of the granite and other rocks, disintegrated by the weather, on the exposed cliffs, and blown down upon the surface of the glaciers, gives them that soiled and dingy aspect which they present.

6. It has often been remarked by those who have examined the glaciers that rocks and stones falling upon them are buried in the falling snows of the higher regions, and, by the melting and freezing of the snow, they become eventually buried in solid ice. In the progress of years, and in the succession of summers, as the glacier advances

downward, bearing along these rocks and stones, they are disclosed by the melting of their covering, and thus they come into view as if they had actually risen. Sometimes they so effectually cover and protect the ice on which they lie that it does not sensibly melt beneath them, while the general surface all around is lowered by the melting, and thus it happens that a rock may stand on a pedestal of ice sometimes several feet or yards above the general level—and many such rocks may be in view at once ; but eventually the pedestals give way, and the elevated rocks fall to the common level.

7. The fissures and crevasses are so numerous and deep, and their edges are so slippery, that great care is requisite at all times to avoid falling into them. When they are concealed by snow arched over them, the danger becomes imminent, and in such cases the cautious guides try the soundness of the footing by applying the iron-pointed alpenstock. The sides of the crevasses are of a splendid blue-green color, and the ice often contains pools of pellucid water. The more superficial cavities are little lakes, accessible without danger, and the water, from its purity and coldness, is very refreshing to the traveler. Rills of water, coursing over the surface, plunge into the crevasses and are lost—all but the musical murmur of their fall.

8. The first appearance of the glaciers is like that of a fearfully agitated ocean, tossed by violent and conflicting and eddying winds, congealed ere the billows have had time to subside, and thus preserving all its high ridges, its peaks, and deep hollows. Still, there is a degree of regularity in the confusion ; the tumult has observed a law which has opened the fissures, in curves, parallel, and nearly at right angles to the rocky banks, the convexity being downward from its source.

9. At the usual rate of descent, a rock which fell upon a high glacier two hundred years ago may only just now

have reached its final resting-place in the lower country; and a block larger than the largest of Egyptian obelisks may occupy the time of six generations of men in its descent before it is laid low in the common grave of its predecessors.

10. The glaciers often terminate so abruptly that corn has often been seen to grow next to the glacier, and the in-

Upper Part of the Glacier of Schwarze, in the Alps.

habitants have gathered ripe cherries while standing with one foot on the tree and the other on the glacier.

11. The lower end of Mer de Glace is called Glacier de Bois. We made an excursion from our hotel up the valley

to inspect an arch formed in the glacier, and to observe the violent eruption of water at the foot of this immense mass of ice, which is here from ten to a hundred feet thick, and stands out vertically quite above the ground. This is merely the lower end of the glacier, which has pushed before it vast accumulations composed of sand, gravel, stones, and large rocks, forming high mounds, and called the terminal moraine. At present the moraine is about forty feet in advance of the glacier, and records the fact that formerly it advanced thus far, and that it has since receded. Now, however, it is again advancing at the rate of a foot a day. It is expected that in the course of a few weeks, or months, it will recover its former position, and not improbably advance still farther.

12. Glacier de Boissons.—We next resorted to the Glacier de Boissons, two or three miles farther down the valley; this, like the Glacier de Bois, reaches the lower country in the valley. In order to obtain a good view, we passed beyond and around it, ascending by a circuit of a mile and a half, in order to approach the side of the glacier at some distance from its termination. This magnificent glacier—the immediate representative of the monarch mountain, since it descends from its icy dome—is hardly inferior in magnitude and length to that of Mer de Glace, and has one interesting peculiarity.

13. The inclined plane on which it descends is steeper than that of the Glacier de Bois, and has in the lower part of its course no lateral barrier of rock to obstruct the view. This immense congealed river of ice, therefore, stands out bodily, and shows its enormous bulk in full relief. We approached it within one hundred yards; but no human foot can, with safety, be placed upon its surface. The fissures and crevasses, such as were described in connection with Mer de Glace, have here done their work perfectly.

14. The icy masses are so dissevered that they appear

like an immense group of white marble columns, or ruins, standing in near proximity, but still separated from each other, so that they rise up in distinct individuality, or are blended at the bottom of the glacier.

15. Some of these masses are one hundred feet high; occasionally they attain double that height; and as the array of this cold army, in the portion where the lateral view is unobstructed, extends a mile and a half, and in breadth half that distance, the spectacle is beyond conception grand, especially as these towering masses fall over with the crash of an avalanche. While we were looking on at the close of a warm day, one of these lofty pinnacles, losing its foothold, toppled over with a terrific concussion. The ice of these glaciers has great purity, and is not soiled by dust as on the Mer de Glace.

Benjamin Silliman.

FORMATION OF GLACIERS.

1. A GLACIER is a mass of ice lying in Alpine valleys, or resting on the flanks of mountains. It is produced from the accumulation of perpetual snow in the hollows of mountains, which detaches itself from their summit, and descends into the valleys. It then becomes solid ice, which melts when it comes in contact with the warmer air, earth, and rains of the valley, the quantity melted being replaced from the reservoirs of snow in the higher mountains. In order to distinguish a glacier from an iceberg Professor Forbes describes *a glacier as ice in motion under gravity.*

2. Glaciers are found in nearly every mountainous country where the peaks rise above the regions of perpetual snow. There are, however, certain forms, positions, or structures of mountains that do not permit the formation of glaciers, although their summits are above the snow-line.

A mountain too steep for snow to adhere to its sides will have no glacier; and mountains with a smooth surface will have no ravines for glaciers to rest in.

3. When seen from above and from a distance, a glacier resembles a long stream of snow, detaching itself from the higher mountain peaks, and flowing into the valleys below; and even when we approach it closely, we still believe that it is a line of snow, and can hardly persuade ourselves that it is an enormous mass of ice, quite different in aspect from that which is formed on our lakes and rivers.

4. At the end of the glacier masses of stones and of rock, that have been transported on the surface of the glacier, are deposited in heaps or mounds, called *moraines;* which are named *terminal moraines* when they lie in front of the lower end of the glacier, and mark the greatest limit of its extension.

5. "A glacier," as Professor Forbes remarks, "is seen to have withdrawn itself very far within its old limits, leaving a prodigious barren waste of stones in advance of it, which, being devoid of soil, nourishes not one blade of grass. At other times the glacier pushes forward its margin beyond the limit which it has ever before reached, tears up the ground with its icy plowshare, and shoves forward the yielding turf in wrinkled folds, uprooting trees, moving vast rocks, and scattering the walls of dwelling-houses in fragments before its irresistible onward march." At this end of the glacier the ice is frequently broken up by cracks into prismatic masses, which, when melted by the sun and rains, take the shape of pyramids of the most grotesque forms.

6. On ascending to the surface of the glacier, the traveler is surprised by the number of cracks or fissures, called *crevasses,* which extend across it, and are, generally speaking, perpendicular to its sides. They are often hundreds of yards long and hundreds of feet deep. These cracks, which

are seldom quite vertical, are found principally where the declivity of the glacier is great, and they are most numerous, and occur in groups, round the projecting points of its bed, in the upper and middle regions of the glacier. They are sometimes found of great length, but comparatively narrower, and insulated in the middle of the glacier.

7. When the crevasses are rare, the surface of the glacier presents numerous streamlets of limpid water of considerable volume, flowing in a shining channel, and exciting the admiration of the observer. Agassiz found one of these upward of twelve hundred yards long, in a straight line. They disappear when the crevasses are produced, as the water soon loses itself in their depths. In the parts of a glacier which have little inclination, the streamlets, when collected into a mass, rush into the first fissure in their course, and convert it into an open vertical shaft, frequently of immense depth, and generally circular or elliptical.

8. The phenomenon of *glacier tables* is one of peculiar interest. They are huge and flat blocks of stone, resting upon high pedestals of ice, so as to resemble a large table. When one of these blocks has separated itself from a moraine, it first melts the ice at its margin ; but, as it protects the ice beneath it from melting and evaporation, while the ice around it disappears, it gradually rises till it is poised on the column upon which it rests, all the ice around it having melted in the summer at the rate of a foot per week. Agassiz has seen blocks of this kind 20 feet long and 10 or 12 wide ; and in 1840 he observed one 15 feet long, 12 feet wide, and 6 feet high, detach itself from its icy pedestal and slide to a distance of 30 feet, crushing to powder the ice over which it passed. In June, 1842, Professor Forbes saw, on the Mer de Glace, one of these tables, 23 feet by 17, and $3\frac{1}{2}$ feet thick. It was then easily accessible ; but as the season advanced it apparently rose rapidly, till, on the 6th of August, the pillar of ice was 13

feet high. About the end of August it slipped from its icy column, and in September it was beginning to rise upon a new one.

9. Glaciers have their origin in the higher parts of the mountain. They commence in the fields or reservoirs of powdery or crystalline snow, which occupy the shoulders and plateaus of mountains. In its descent or overflow this snow becomes more granular, and forms what is called the *névé* in French. This *névé* is the true origin and material of the glacier. Its leading characteristic is uniformity of appearance, having neither moraines, streamlets, tables, nor aiguilles; and, in consequence of this uniformity, it is easy to determine the *line of the névé* where the glacier or the region of compact ice commences, with its moraines, streamlets, tables, gravel cones, aiguilles, baignoires, and meridian holes.

10. Crevasses are so rare in the *névé* that M. Agassiz has walked more than a league on the *névé* of Aletsch without meeting a single one, and it is very seldom that its surface has any of the inequalities of the compact ice. The smooth *névé* is distinctly stratified, consisting of horizontal annual layers or beds, produced by successive snow-falls. The stratification extends to a great depth; but in the transition state of the *névé* into glacier, "the ice-falls which produce them succeeding one another," according to Professor Forbes, "at regulated intervals, corresponding to the renewal of each summer's activity." "Stratified appearance ceases at an inconsiderable depth, the interior of the mass being granular and without structure or bands of any kind."

North British Review.

MOVEMENT OF GLACIERS.

1. Among the remarkable facts connected with the motion of glaciers is their oscillation, or their advance into the valley, and their retreat from their advanced position. When a great quantity of snow falls on the mountains the mass of the glacier is increased, and it is pushed forward into the valley; and, on the other hand, the glacier will retreat when less snow is supplied to the *névé*, and when there is a succession of warm summers. The advance of glaciers is often accompanied with the most disastrous inundations. According to M. Venetz, a glacier in the valley of Hereus advanced with a noise like that of thunder, and with steps nearly ten feet long!

2. In the year 1818 the advance of the glacier Getroz was attended with the most distressing consequences. This glacier is situated amid the defiles of Mont Pleuveur. It terminates in a cliff of enormous height, over which, in the advance of the glacier, avalanches of icy fragments are precipitated, and form a secondary glacier, resembling masses of unmelted snow. In 1545 and 1595 this second glacier advanced so as to dam up the river Dranse, which waters the Val de Bagnes. When the icy barrier gave way under the heat of summer, the accumulated water rushed out with irresistible force, charged with enormous masses of rock, tearing up and destroying everything in its course, till it fell into the Rhône. In 1545, 140 persons perished in the flood; and in 1595, when it destroyed the town of Martigny, the peasantry who dwelt in the valleys were reduced to abject poverty, and from sixty to eighty perished in the torrent.

3. For some years previous to 1818 the avalanches of ice and snow had enlarged the secondary glacier; and, as soon as it was able to resist the summer heat, it then acquired

new magnitude, and from a height of 100 feet it descended a declivity of 45° and threw itself, in the form of a homogeneous mass of ice, across the Dranse, the base of the cone resting on the precipitous flanks of Mont Mauvoisin, on the opposite side of the valley. In the month of April, when the river was completely stopped, a lake continued to form till it became nearly three miles long, its absolute average breadth 400 feet, its average depth 200 feet, and its contents at least 800,000,000 cubic feet.

4. The certainty of its bursting having been perceived, M. Venetz, an able engineer, began, on the 10th of May, to cut a tunnel through the ice in order to drain it; and by the 13th of June it was completed. The tunnel was 68 feet long; and by the 16th of June the height of the lake was diminished 45 feet, and its contents reduced to 500,000,000 cubic feet. In this process the water flowing over the lower end of the tunnel melted the ice, and reduced it to a few feet; while the water of the lake, penetrating the crevasses of the glacier, detached from it enormous fragments, and weakened it to such a degree that the cascade excavated a passage when the glacier rested upon Mont Mauvoisin.

5. "As soon as this happened, the water rushed out, the ice gave way with a tremendous crash, the lake was emptied in half an hour, and the sea of water which it contained precipitated itself with a rapidity and violence which it is impossible to describe. The fury of this raging flood was first staid by the narrow gorge below the glacier, formed between Mont Pleuveur and Mont Mauvoisin.

6. "Here it was ingulfed with such force that it carried away the bridge of Mauvoisin, ninety feet above the Dranse, and even rose several fathoms above the advanced mass of the mountain. From this narrow gorge the flood spread itself over a wider part of the valley, which again contracted in another gorge; and in this way, passing from one basin to another, it acquired new violence, and carried

along with it forests, rocks, houses, barns, and cultivated land.

7. "When it reached Le Chable, one of the principal villages of the valley, the flood, which seemed to contain more *débris* than water, was pent up between the piers of a solid bridge nearly fifty feet above the Dranse, and began to attack the inclined plane upon which the church and the chief part of the village is built. An additional rise of a few feet would have instantly undermined the village; but at this critical moment the bridge gave way, and carried with it the houses at its two extremities. The flood now spread itself over the wide part of the valley between Le Chable and St. Branchier, undermining and destroying and hurrying away the houses, the roads, the richest crops, and the finest trees loaded with fruit.

8. "Instead of being incumbered with these spoils, the moving chars received from them new force; and, when it reached the narrow valley from St. Branchier to Martigny, it continued its work of destruction till its fury became weakened by expanding itself over the great plain formed by the valley of the Rhone. After ravaging Le Bourg and the village of Martigny, it fell with comparative tranquillity into the Rhône, leaving behind it, on the plain of Martigny, the wreck of houses and of furniture, thousands of trees torn up by the roots, and the bodies of men and of animals whom it had swept away. As the flood took half an hour in passing every point which it reached, it follows that it furnished 300,000 cubic feet of water every second."

9. In 1819 a catastrophe of a different kind was occasioned by the glacier of Randa, situated six leagues from Virge and in the valley of St. Nicholas. At 6 A. M. on the 27th of December a part of the glacier detached itself from the side of the Weisshorn, and fell with a noise like thunder on the lower masses of the glacier. At the same instant the *curé* saw a bright light, which was followed by

great darkness. A violent gust of wind which immediately followed the light transported mill-stones several fathoms, uprooted large trees, tossed blocks of ice upon the village, overturned houses, and carried the beams of several of them into the forest half a league above the village. The detached mass, composed of snow, ice, and stone, covered the meadow with its fragments to the extent of 2,400 feet long, 1,000 wide, and 150 deep, equivalent to a volume of 360,000,000 cubic feet.

10. An inundation similar to that of the Val de Bagnes took place in 1845, in the valley of Rosenthal, in the Tyrol, in consequence of the advance of the united glaciers of Vernagt and Rofen, which do not meet in ordinary seasons. In 1840 the glacier of Rofen increased greatly, and advanced at the rate of about 1,640 feet annually. At the end of 1844 the two glaciers were united, and advanced at the rate of five and a half feet in a day, increasing both in width and height. It was subject to violent movements, which tore up its mass and produced detonations like thunder, which resounded through the valley. At last, in 1845, it passed in twelve days over the space of 400 feet, which separated it from the valley of Rosenthal, and cut off the water which flowed in the upper part of the valley. A large lake was thus formed, and on the 13th of June the dike broke, and the water, rushing on, produced the usual disasters.

North British Review.

HYMN TO MONT BLANC.

1. HAST thou a charm to stay the morning-star
In his steep course? So long he seems to pause
On thy bald awful head, O sovran Blanc!
The Arve and Arveiron at thy base
Rave ceaselessly; but thou, most awful Form!

Risest from forth thy silent sea of pines,
How silently! Around thee and above
Deep is the air, and dark, substantial, black,
An ebon mass: methinks thou piercest it,

Mont Blanc, from above Morges.

As with a wedge! But when I look again,
It is thine own calm home, thy crystal shrine,
Thy habitation from eternity!
O dread and silent Mount! I gazed upon thee,
Till thou, still present to the bodily sense,
Didst vanish from my thought: entranced in prayer
I worshiped the Invisible alone.

2. Yet like some sweet beguiling melody,
So sweet, we know not we are listening to it,
Thou, the meanwhile, wast blending with my thought,

Yea, with my life and life's own secret joy :
Till the dilating Soul, enrapt, transfused,
Into the mighty vision passing—there
As in her natural form, swelled vast to Heaven !

3. Awake, my Soul ! not only passive praise
Thou owest ! not alone these swelling tears,
Mute thanks and secret ecstasy ! Awake,
Voice of sweet song ! Awake, my Heart, awake !
Green vales and icy cliffs, all join my Hymn.

4. Thou first and chief, sole sovran of the Vale !
O struggling with the darkness all the night,
And visited all night by troops of stars,
Or when they climb the sky or when they sink :
Companion of the morning-star at dawn,
Thyself Earth's rosy star, and of the dawn
Co-herald : wake, O wake, and utter praise !
Who sank thy sunless pillars deep in Earth ?
Who filled thy countenance with rosy light ?
Who made thee parent of perpetual streams ?

5. And you, ye five wild torrents fiercely glad !
Who called you forth from night and utter death,
From dark and icy caverns called you forth,
Down those precipitous, black, jagged rocks,
For ever shattered and the same for ever ?
Who gave you your invulnerable life,
Your strength, your speed, your fury, and your joy,
Unceasing thunder and eternal foam ?
And who commanded (and the silence came),
Here let the billows stiffen, and have rest ?

6. Ye ice-falls ! ye that from the mountain's brow
Adown enormous ravines slope amain—
Torrents, methinks, that heard a mighty voice,
And stopped at once amid their maddest plunge !

Motionless torrents! silent cataracts!
Who made you glorious as the gates of Heaven
Beneath the keen full moon? Who bade the sun
Clothe you with rainbows? Who, with living flowers
Of loveliest blue, spread garlands at your feet?—
God! let the torrents, like a shout of nations,
Answer! and let the ice-plains echo, God!
God! sing ye meadow-streams with gladsome voice!
Ye pine-groves, with your soft and soul-like sounds!
And they too have a voice, yon piles of snow,
And in their perilous fall shall thunder God!

7. Ye living flowers that skirt the eternal frost!
Ye wild goats sporting round the eagle's nest!
Ye eagles, playmates of the mountain-storm!
Ye lightnings, the dread arrows of the clouds!
Ye signs and wonders of the element!
Utter forth God, and fill the hills with praise!

8. Thou too, hoar Mount! with thy sky-pointing peaks,
Oft from whose feet the avalanche, unheard,
Shoots downward, glittering through the pure serene
Into the depth of clouds, that veil thy breast—
Thou too again, stupendous Mountain! thou
That as I raise my head, awhile bowed low
In adoration, upward from thy base
Slow traveling with dim eyes suffused with tears,
Solemnly seemest, like a vapory cloud,
To rise before me—Rise, O ever rise,
Rise like a cloud of incense, from the Earth!
Thou kingly Spirit throned among the hills,
Thou dread ambassador from Earth to Heaven,
Great hierarch! tell thou the silent sky,
And tell the stars, and tell yon rising sun,
Earth, with her thousand voices, praises God.

Coleridge.

KILIMANDJARO.*

1. HAIL to thee, monarch of African mountains,
Remote, inaccessible, silent and lone—
Who, from the heart of the tropical fervors,
Liftest to heaven thine alien snows,
Feeding for ever the fountains that make thee
Father of Nile and Creator of Egypt.

2. The years of the world are engraved on thy forehead,
Time's morning blushed red on thy first fallen snows;
Yet, lost in the wilderness, nameless, unnoted,
Of Man unbeholden, thou wert not till now.
Knowledge alone is the being of Nature,
Giving a soul to her manifold features,
Lighting through paths of the primitive darkness
The footsteps of Truth and the vision of Song.
Knowledge has born thee anew to Creation,
And long-baffled Time at the baptism rejoices.
Take, then, a name, and be filled with existence,
Yea, be exultant in sovereign glory,
While from the pen of the wandering poet
Drops the first garland of song at thy feet.

3. Floating alone, on the flood of thy making,
Through Africa's mystery, silence, and fire,
Lo! in my palm, like the Eastern enchanter,
I dip from the waters a magical mirror,
And thou art revealed to my purified vision.
I see thee, supreme in the midst of thy co-mates,
Standing alone 'twixt the Earth and the Heavens,
Heir of the sunset and Herald of Morn.

* This poem was written soon after the discovery of Kilimandjaro by the German missionary, Rebmann, in 1848.

Zone above zone, to thy shoulders of granite,
The climates of Earth are displayed, as an index,
Giving the scope of the Book of Creation.
There, in the gorges that widen, descending
From cloud and from cold into summer eternal,
Gather the threads of the ice-gendered fountains—
Gather to riotous torrents of crystal;
And, giving each shelvy recess where they dally
The blooms of the North and its evergreen turfage,
Leap to the land of the lion and lotus!
There, in the wondering airs of the tropics,
Shivers the Aspen, still dreaming of cold;
There stretches the Oak, from the loftiest ledges,
His arms to the far-away lands of his brothers,
And the Pine-tree looks down on his rival, the Palm.

4. Bathed in the tenderest purple of distance,
Tinted and shadowed by pencils of air,
Thy battlements hang o'er the slopes and the forests,
Seats of the gods in the limitless ether,
Looming sublimely aloft and afar.
Above them, like folds of imperial ermine,
Sparkle the snow-fields that furrow thy forehead,
Desolate realms, inaccessible, silent,
Chasms and caverns where Day is a stranger,
Garners where storeth his treasures the Thunder,
The Lightning his falchion, his arrows the Hail!

5. Sovereign Mountain, thy brothers give welcome;
They, the baptized and crowned of ages,
Watch-towers of Continents, altars of Earth,
Welcome thee now to their mighty assembly.
Mont Blanc, in the roar of his mad avalanches,
Hails thy accession; superb Orizaba,
Belted with beech and ensandaled with palm;

Chimborazo, the lord of the regions of noonday,
Mingle their songs in magnificent chorus
With greeting august from the Pillars of Heaven,
Who, in the urns of the Indian Ganges,
Filter the snows of their sacred dominions,
Unmarked with a foot-print, unseen but of God.

6. Lo ! unto each is the seal of his lordship,
Nor questioned the right that his majesty giveth,
Each in his awful supremacy forces
Worship and reverence, wonder and joy.
Absolute all, yet in dignity varied,
None has a claim to the honors of story,
Or the superior splendors of song,
Greater than thou, in thy mystery mantled,
Thou, the sole monarch of African mountains,
Father of Nile and Creator of Egypt.

Bayard Taylor

PART II.

BASINS AND PLAINS.

THE GREAT BASIN OF THE ROCKY MOUNTAINS.

1. The plains, or valleys, of Utah, then, have generally a soil of white clay, sometimes rocky, at others streaked by sand or gravel, but usually pure clay, save as it is impregnated with some alkaline substance—usually saleratus, but in places niter, in others salt or sulphur. Sometimes, but rarely, considerable areas of this alkali in a nearly pure state are exposed on the surface; in many places it covers the beds of shallow, dried-up lakes, and even streams, with a whitish incrustation; but is more generally diffused through the soil, and thus impregnates the springs and streams. Irrigating a piece of ground strongly imbued with alkali will often bring on incrustation of it to the surface, after which no trouble from it is experienced in that place.

2. The mountains which divide these plains exude very little water. Whenever a range is single—that is, with a broad valley each side of it—it is apt to be not more than 1,000 to 3,000 feet high, and so to be early denuded of snow; its springs are few and generally feeble, and their waters are often dried up before trickling half way down the sides of the mountain which gave them birth. If a spring is so copious, or so many are speedily combined, as

to form a considerable stream, they may reach the plain; but only to be speedily drunk up by its scorched surface. Cultivation, therefore, save in a very few narrow spots, seems here impossible. But, wherever a chaos or jumble of mountains is presented—still more where mountains rise behind mountains, range behind range, rank above rank, till the summits of the farthest that may be seen are flecked with snow—there the case is altered. Springs are there more abundant and more copious; the gradual melting of the snows swells the rivulets formed by the speedy meeting of their waters; and thus considerable brooks are formed and poured down upon the subjacent plains, as we observe in and around Salt Lake City, and north and west of Lake Utah. Thus are formed Bear and Weber Rivers; such, I believe, is the origin of the Humboldt.

3. But such instances are far too rare in Utah. From the Jordan to the Humboldt is about 350 miles by the route I traveled, and in all that distance the brooks and rills I crossed or saw, could they be collected into one channel, would barely form a decent mill-stream. I thence traveled down the south side of the Humboldt for 225 miles, and in all that distance not more than two tributaries come in on that side, and their united currents would barely suffice to turn a grindstone. This desolation seems, therefore, irredeemable. The mountains of central Utah are less hopeless than the Plains. Contrary to my former impression, they are fairly wooded—by which I mean that wood is procurable on them—at almost any point. This wood is for the most part cedar, six to ten feet high, and from a foot downward in diameter near the ground. White pines of like size and of equally scrubby character are quite common in the western part of the mountains I traversed, and there is some balsam-fir in the deeper cañons, which attains a diameter of fifteen to twenty inches, and a height of forty to sixty feet.

4. I wish to record my opinion that the Humboldt, all things considered, is the meanest river of its length on earth. Rising in the Humboldt Mountains, hardly 150 miles west of Salt Lake, it is at first a pure stream—or, rather, streams, for their are two main branches—but it is soon corrupted by its alkaline surroundings, and its water, for at least the lower half of its course, is about the most detestable I ever tasted. I mainly chose to suffer thirst rather than drink it. Though 350 miles in length, it is never more than a decent mill-stream ; I presume it is the only river of equal length that never had even a canoe launched upon its bosom. Its narrow bottom, or intervale, produces grass ; but so coarse in structure, and so alkaline by impregnation, that no sensible man would let his stock eat it if there were any alternative. Here, however, there is none. Cattle must eat this, or die ; many of them eat it, and die.

5. I believe no tree of any size grows on this forlorn river from its forks to its mouth ; I am sure I saw none while traversing the lower half of its course. Half a dozen specimens of a large, worthless shrub, known as buffalo-bush or bull-berry, with a prevalent fringe of willows about the proper size for a school-ma'am's use, comprise the entire timber of this delectable stream, whose gadflies, mosquitoes, gnats, etc., are so countless and so blood-thirsty as to allow cattle, so unhappy as to be stationed on or driven along this river, no chance to eat or sleep. Many have died this season of bad water that would have survived the water but for these execrable insects, by which the atmosphere at times is darkened. It certainly is not a pleasure to ride, night and day, along such a stream, with the heat intense, the dust a constant cloud, and the roads all gullied and ground into chuck-holes ; but, then, who would stay in such a region one moment longer than he must ?

6. Here Famine sits enthroned, and waves his scepter over a dominion expressly made for him. On the Plains

I regarded cotton-wood with contempt; here a belt, even the narrowest fringe, of cotton-wood would make a comparative Eden. The sage-bush and grease-wood, which cover the high, parched plain on either side of the river's bottom, seems thinly set, with broad spaces of naked, shining, glaring, blinding day between them; the hills beyond, which bound the prospect, seem even more naked. Not a tree, and hardly a shrub, anywhere relieves their sterility; not a brook, save one small one, runs down between them to swell the scanty waters of the river.

7. After a course, at first west by south, then north by west, afterward southwest, and for the last fifty miles due south, the river falls into Lake Humboldt, a fine sheet of clear water, perhaps fifteen miles in length and forty in circumference. I tried to obtain an approximation to its depth, but could not, those who have staid beside it longest assuring me that no boat had ever floated upon its waters—a statement which the destitution of wood on all this region renders credible.

8. A stream, not so copious as the river, runs from the lake on the south and flows with a gentle, sluggish current into a large tulé or reed-marsh, which has no outlet, and is said to be but moderately salt. Here the Humboldt is said to sink, but I suspect the waters are all drunk up by evaporation and by the thirsty sands which surround them.

Horace Greeley.

THE GREAT DISMAL SWAMP.

1. THERE are many swamps, or morasses, in this low, flat region, and one of the largest of these occurs between the towns of Norfolk and Weldon. We traversed several miles of its northern extremity on the railway, which is sup-

ported on piles. It bears the appropriate and very expressive name of the "Great Dismal," and is no less than forty miles in length from north to south, and twenty-five miles in its greatest width from east to west, the northern half being situated in Virginia, the southern in North Carolina. I observed that the water was obviously in motion in several places, and the morass had somewhat the appearance of a broad inundated river-plain, covered with all kinds of aquatic trees and shrubs, the soil being as black as in a peat-bog.

2. The accumulation of vegetable matter going on here in a hot climate, over so vast an area, is a subject of such high geological interest that I shall relate what I learned of this singular morass. It is one enormous quagmire, soft and muddy, except where the surface is rendered partially firm by a covering of vegetables and their matted roots; yet, strange to say, instead of being lower than the level of the surrounding country, it is actually higher than nearly all the firm and dry land which encompasses it; and, to make the anomaly complete, in spite of its semi-fluid character, it is higher in the interior than toward its margin.

3. The juniper-trees, or white cedar, stand firmly in the softest part of the quagmire, supported by their long tap-roots, and afford, with many other evergreens, a dark shade, under which a multitude of ferns, reeds, and shrubs, from nine to eighteen feet high, and a thick carpet of mosses, four or five inches high, spring up, and are protected from the rays of the sun. When these are most powerful, the large cedar and many other deciduous trees are in full leaf. The black soil formed beneath this shade, to which the mosses and the leaves make annual additions, does not perfectly resemble the peat of Europe, most of the plants being so decayed as to leave little more than soft, black mud, without any traces of organization.

4. Numerous trunks of large and tall trees lie buried in

the black mire of the morass. In so loose a soil they are easily overthrown by winds, and nearly as many have been found lying beneath the surface of the peaty soil as standing erect upon it. When thrown down, they are soon covered by water, and keeping wet, they never decompose, except the sap-wood, which is less than an inch thick. Much of the timber is obtained by sounding a foot or two below the surface, and it is sawn into planks while half under water.

5. The Great Dismal has been described as being highest toward its center. Here, however, there is an extensive lake of an oval form, seven miles long and more than five wide, the depth, where greatest, fifteen feet, and its bottom consisting of mud like the swamp, but sometimes with a pure white sand, a foot deep, covering the mud. The water is transparent, though tinged of a pale-brown color, like that of our peat-mosses, and contains abundance of fish. This sheet of water is usually even with its banks, on which a thick, tall forest grows. There is no beach, for the bank sinks perpendicularly, so that if the waters are lowered several feet it makes no alteration in the breadth of the lake.

6. The bears inhabiting the swamp climb trees in search of acorns and gum-berries, breaking off large boughs of the oak in order to draw the acorns near to them. These same bears are said to kill hogs, and even cows. There are also wild-cats, and occasionally a solitary wolf, in the morass.

Sir Charles Lyell.

THE LAKE OF THE DISMAL SWAMP.

They tell me of a young man who lost his mind upon the death of a girl he loved, and who, suddenly disappearing from his friends, was never afterward heard of.

As he had frequently said in his ravings that the girl had gone to the Dismal Swamp, it is supposed he had wandered into that dreary wilderness, and had died of hunger, or been lost in some dreadful morass.

1. "They made her a grave, too cold and damp
For a soul so warm and true;
And she's gone to the Lake of the Dismal Swamp,
Where all night long, by a fire-fly lamp,
She paddles her white canoe.

2. "And her fire-fly lamp I soon shall see,
And her paddle I soon shall hear;
Long and loving our life shall be,
And I'll hide the maid in a cypress-tree,
When the footstep of Death is near!"

3. Away to the Dismal Swamp he speeds—
His path was rugged and sore—
Through tangled juniper, beds of reeds,
Through many a fen, where the serpent feeds,
And man never trod before!

4. And when on the earth he sunk to sleep,
If slumber his eyelids knew,
He lay, where the deadly vine doth weep
Its venomous tear, and nightly steep
The flesh with blistering dew!

5. And near him the she wolf stirred the brake,
And the copper snake breathed in his ear,
Till he starting cried, from his dream awake,
"Oh! when shall I see the dusky lake,
And the white canoe of my dear?"

6. He saw the lake, and a meteor bright
Quick over its surface played;
"Welcome," he said, "my dear one's light!"
And the dim shore echoed, for many a night,
The name of the death-cold maid!

7. Till he hollowed a boat of the birchen bark,
Which carried him off from shore;
Far he followed the meteor spark;
The wind was high and the clouds were dark,
And the boat returned no more.

8. But oft from the Indian hunter's camp
This lover and maid so true
Are seen, at the hour of midnight damp,
To cross the lake by a fire-fly lamp,
And paddle their white canoe!

Thomas Moore.

PART III.

EARTHQUAKES AND VOLCANOES.

DESTRUCTION OF HERCULANEUM.

1. A GREAT city, situated amid all that nature could create of beauty and of profusion, or art collect of science and magnificence, the growth of many ages, the residence of enlightened multitudes, the scene of splendor and festivity and happiness, in one moment withered as by a spell, its palaces, its streets, its temples, its gardens, "glowing with eternal spring," and its inhabitants in the full enjoyment of all life's blessings, obliterated from their very place in creation, not by war, or famine, or disease, or any of the natural causes of destruction to which earth had been accustomed, but in a single night, as if by magic, and amid the conflagration, as it were, of nature itself, presented a subject on which the wildest imagination might grow weary without even equaling the grand and terrible reality.

2. The eruption of Vesuvius, by which Herculaneum and Pompeii were overwhelmed, has been chiefly described to us in the letters of Pliny the Younger to Tacitus, giving an account of his uncle's fate, and the situation of the writer and his mother. The elder Pliny had just returned from the bath, and was retired to his study, when a small speck or cloud, which seemed to ascend Mount Vesuvius, attracted his attention. This cloud gradually increased, and at

length assumed the shape of a pine-tree, the trunk of earth and vapor, and the leaves "red cinders." Pliny ordered his galley, and, urged by his philosophic spirit, went forward to inspect the phenomenon. In a short time, however, philosophy gave way to humanity, and he zealously and adventurously employed his galley in saving the inhabitants of the various beautiful villas which studded that enchanting coast.

3. Among others, he went to the assistance of his friend Pomponianus, who was then at Stabiæ. The storm of fire and the tempest of earth increased, and the wretched inhabitants were obliged, by the continual rocking of their houses, to rush out into the fields with pillows tied down by napkins upon their heads, as their sole defense against the shower of stones which fell on them. This, in the course of nature, was in the middle of the day ; but a deeper darkness than that of a winter night had closed around the ill-fated inmates of Herculaneum.

4. This artificial darkness continued for three days and nights, and when, at length, the sun again appeared over the spot where Herculaneum stood, his rays fell upon an ocean of lava ! There was neither tree, nor shrub, nor field, nor house, nor living creature, nor visible remnant of what human hands had reared ; there was nothing to be seen but one black extended surface still streaming with mephitic vapor, and heaved into calcined waves by the operation of fire and the undulations of the earthquake ! Pliny was found dead upon the sea-shore, stretched upon a cloth which had been spread for him, where it was conjectured he had perished early, his corpulent and apoplectic habit rendering him an easy prey to the suffocating atmosphere.

Harper's Magazine.

POMPEII.

1. On the 24th of August, in the year 79 of our own era, and not long after midday, Vesuvius broke the repose of untold ages, and resumed, with tragical energy, his ancient reign of fire, awakening the slumbering echoes of his power with terrible detonations and fearful earthquakes. A darkness that might be felt shrouded in the profoundest gloom the midday sun, and ashes fell like snow upon the mountain, the plain, the bays of Naples and Baiæ, and far into the surrounding country.

2. Rain from the condensed stream of the eruption deluged the whole district ; torrents of fluid mud, formed by the ashes and water, swept over every obstruction, and filled to overflowing every depression of the surface. The terrified inhabitants, overwhelmed by superstitious fears, joined the droves of domestic animals, whose keener instincts had already impelled them to desert a district filled with sulphurous vapors, and vibrating with ominous and unwonted sounds, wandering they knew not where, in search of some place where the frightful evidences of the wrath of the gods might be avoided.

3. Pompeii was first discovered in 1748. It lies about twelve miles southeast from Naples. The town was extremely compact, and appears to have been only three fourths of a mile long by half a mile wide. The houses were joined together. Twenty streets, which are only fifteen feet wide, had been uncovered twenty years since. The walls are still in good condition ; they were three miles in circuit, from eighteen to twenty feet high, and twenty feet thick. Seven gates have been discovered—the gate of Herculaneum, of Vesuvius, of Capua, of Nola, of Sarno, of Stabiæ, and of the theatres. The sites of nine towers have been ascertained.

4. At the time of our visit, only about one third of the city had been excavated, the remaining two thirds being covered by an extended volcanic mound, over which the traveler might have driven, as thousands have heedlessly done in centuries past, unconscious that a city of the dead slumbered beneath the hoofs of the horses. We were first driven to the house of Diomede, a country house just outside the walls of the city. It is an elegant Roman villa, and still stands nearly perfect, eighteen hundred years after the great catastrophe. Its columns are erect, its walls entire, and its open doors seem to invite the strangers to enter ; but the family are not there, and silence reigns in the halls of Diomede !

5. At the time of the catastrophe the family of Diomede sought refuge from the falling pumice under the strong arch of the wine-cellar, strong enough to resist and sustain the load of falling materials, but not proof against the deluge of volcanic mud, whose unexpected inundation brought death to the mistress, her children, and fifteen female slaves. The record of the manner of their death is even now perfectly legible. The form of the mistress, with her back and head to the wall, with outstretched arms, is clearly delineated by the difference of color. Surrounding her are the impressions of the persons of seventeen others, various in stature, but all standing, save one infant in arms.

6. When these silent vaults were excavated, here stood the skeletons of these unfortunate people, the rich jewels of the mistress and of her daughter circling the bony fingers and wrists and neck. These we afterward saw in the museum at Naples, the left humerus of the mother, as also the skull of the daughter, whose name, Julia, was engraved upon her bracelet. Equally strange and wonderful was it to see the cast of the bosom of this Roman matron, taken with life-like precision, in the soft and fluid tufa. Her

hand still grasped the purse, whose contents are also among the wonderful treasures of the same museum.

7. Beyond the garden and the fish-pond, which are contiguous to the wine-cellar, there is a gateway where were found two skeletons, with valuable vessels and money; one hand held a rusted key, and the other a bag with coin and cameos, and vessels of silver and bronze were near. These are believed to have been the remains of the master Diomede and his servant. A wrapper contained eighty pieces of silver money, ten of gold, and some bronze. It appears highly probable that, having left the family in a place which was believed to be safe, they were engaged in transporting valuables to a place of deposit, when they were overtaken by the same deluge which destroyed their friends.

8. The celebrated Appian Way passed by the house of Diomede, and through Pompeii to Stabiæ. The road is now above ground, and is evidently as perfect as when Pompeii was buried. It is paved with large blocks of the ancient lava of Monte Somma, which, of course, proves the occurrence of earlier eruptions of the volcano, although at an unknown era. Deep ruts are worn by the wheels in the solid lava, which is as firm as trap, while the stones are strongly marked by the rust of the iron worn off from the wheel-tires. The furrows prove that the wheels were not more than four feet apart. This is proved also by the position of the stepping-stones for crossing the streets, which were so placed that the wheels passed between them.

9. The stepping-stones were very large, and two and a half or three feet long, their longest diameter coinciding with the direction of the street; and they were laid so near to each other that the passengers could pass quite across the street from one sidewalk to the opposite without stepping down. There were sidewalks in the principal streets about three feet wide, and two feet above the pave-

ment. The streets were paved with the same hard lava rock, and in many places it was worn into deep hollows by human feet, thus proving the high antiquity of the city. The street near the barracks is only thirteen feet wide. We passed through one street in which the pavement was in very bad order ; the ruts were worn irregularly and very deep, the stones were tilted out of the proper level, and there, as sometimes happens in modern cities, the street commissioners had evidently not done their duty.

10. At the door of the mansion of the Ædile Glaucus, which was one of the largest and best in the city, there was in the vestibule, and before entering the house, a very startling Mosaic figure of a large and powerful dog, secured by a chain around his neck, but crouching and fierce, as if about to spring upon the visitor ; and immediately before this vigilant sentinel you read in large Roman letters, *cave canem*—beware of the dog ! The inscription is preserved in the original place where we saw it, but the dog has been removed to the museum at Naples. It is still a perfect figure of a Roman dog.

11. Around the fountain in one of the houses there were numerous grotesque jets formed of marble, in the shape of miniature bulls, ducks, and dolphins, and associated with them was a Bacchus. A leaden tube, which formerly conveyed water for the fountain, remains in place as it passed through the wall. We observed, as illustrating the condition of the art of working this metal among the Romans, that the pipe was not drawn nor cast, but was made by folding up a sheet into the tubular form, and closing the joint by a lap without solder. In this house was a large vaulted music-room, the walls of which are nearly perfect. The object for which the room was constructed was sufficiently indicated by figures of musical instruments, and of persons playing upon them.

12. Columns were in general use in the better houses,

around the included area, in the gardens, and in other places. In the best dwellings they are of polished marble, in many they are stuccoed. Some of the Roman houses, in their most perfect and uninjured condition, must have been very beautiful, although their accommodations were much more limited than those of modern times. The rooms—the dormitories especially—were much smaller ; the houses were low, and rarely rose above two stories. They were so constructed as to admit of the most perfect domestic seclusion ; no eye could scrutinize the family privacy from the street, or from another house.

13. The Forum was large and handsome, and surrounded with double rows of columns for a covered colonnade. In connection with it was a temple of Jupiter, and another, opposite to it, of Venus, both decorated with massive monolithic columns. Half-dressed blocks of marble and portions of columns lie on the ground in the Forum, where they were in process of preparation, to repair the injuries done to the building by the shocks of an earthquake before the destructive eruption. Numerous dislocated and propped walls in the city bear testimony to the same event, which occurred in the year 63.

14. Connected with the Forum was the Basilica, or hall of justice, a structure adorned with columns, and provided with an elevated tribune for the judges. Vaulted apartments beneath were used as a prison, communicating by a circular opening in the crown of the arch with the hall above. In this prison, which we entered, were found three skeletons of prisoners, ironed to the floor, doubtless waiting their examination at the time of the catastrophe which so unexpectedly changed the venue of their trial to another bar !

15. *The Amphitheater* was in a remote part of the city, near the eastern wall. It has undergone so little dilapidation that it appears almost perfect. We approached it by

ascending the ground until we were quite at the top, and we then descended by the stone seats, quite to the arena, which, by pacing, we found to be 240 feet by 120. From the arena we looked up over the entire circuit and elevation of the seats, which are almost perfectly preserved—thanks to the sepulture of 1,700 years. Had this amphitheatre been in the midst of Naples, as the Coliseum was at Rome, it would, no doubt, have fared as ill at the hands of the architects. It was easy for us now to people it in imagination with the thousands of Romans who have so often gazed and applauded from these seats while blood, both brute and human, was flowing in the arena where we were standing. Such may have been the scenes when the tempest of fire broke forth, for the people of Pompeii are said to have been then engaged in the amphitheater.

16. There are two buildings for public baths which are well preserved ; the bronze seats and braziers still remain in them. For men there was a common bath, circular, and large enough for entire immersion ; it is of marble, and is now in good condition. The dome, or ceiling, has in part fallen in, but the portion over the bath is preserved. We measured the room, and found it to be 60 feet by 20. There was another bath for women, contiguous to this, but at a proper distance. This marble bath is quite perfect, and the room, being entirely arched, has been preserved uninjured. It is most interesting. There is a living fountain at one end, and there was an arrangement, whose object is even now quite apparent, for warming the room by hot air or steam.

B. Silliman.

ERUPTION OF MOUNT ETNA.

1. The festival in honor of St. Agatha had continued three days, and the noises of the revelry had not ceased at midnight on Friday. I slept soundly through the night, but was awakened before sunrise by my Sicilian landlord. "O Excellenza! have you heard the mountain? He is going to break out again; may the holy Santa Agatha protect us!" Next came along the jabbering landlady: "I

Eruption of Mount Etna.

don't like his looks. It was just so the last time. Come, Excellenza, you can see him from the back terrace." The sun was not yet risen, but the east was bright with his coming, and there was not a cloud in the sky. All the

features of Etna were sharply sculptured in the clear air. From the topmost cone a thick stream of white smoke was slowly puffed out at short intervals, and rolled lazily down the eastern side. It had a heavy, languid character, and I should have thought nothing of the appearance but for the alarm of my hosts. It was like the slow fire of Earth's incense burning on the grand mountain altar.

2. At last we rolled out of Catania. There were in the diligence, besides myself, two men and a woman, Sicilians of the secondary class. The road followed the shore, over rugged tracts of lava, the different epochs of which could be distinctly traced in the character of the vegetation. The last great flow (of 1697) stood piled in long ridges of terrible sterility, barely allowing the aloe and cactus to take root in the hollows between. The older deposits were sufficiently decomposed to nourish the olive and vine; but even here the orchards were studded with pyramids of the harder fragments, which are laboriously collected by the husbandmen. In the few favored spots which have been untouched for so many ages that a tolerable depth of soil has accumulated, the vegetation has all the richness and brilliancy of tropical lands. The palm, orange, and pomegranate thrive luxuriantly, and the vines almost break under their heavy clusters.

3. The villages are frequent and well built, and the hills are studded, far and near, with the villas of rich proprietors, mostly buildings of one story, with verandas extending their whole length. Looking up toward Etna, whose base the road encircles, the views are gloriously rich and beautiful. On the other hand is the blue Mediterranean and the irregular outline of the shore, here and there sending forth promontories of lava, cooled by the waves into most fantastic forms.

4. We had not proceeded far before a new sign called my attention to the mountain. Not only was there a per-

ceptible jar or vibration in the earth, but a dull, groaning sound, like the muttering of distant thunder, began to be heard. The smoke increased in volume, and, as we advanced farther to the eastward, and much nearer to the great cone, I perceived that it consisted of two jets, issuing from different mouths. A broad stream of very dense white smoke still flowed over the lip of the topmost crater and down the eastern side. As its breadth did not vary, and the edges were distinctly defined, it was no doubt the sulphureous vapor rising from a river of molten lava. Perhaps a thousand yards below, a much stronger column of mingled black and white smoke gushed up, in regular beats or pants, from a depression in the mountain-side, between two small, extinct cones. All this part of Etna was scarred with deep chasms, and in the bottoms of those nearest the opening I could see the red gleam of fire. The air was perfectly still, and as yet there was no cloud in the sky.

5. When we stopped to change horses at the town of Aci Reale, I first felt the violence of the tremor and the awful sternness of the sound. The smoke by this time seemed to be gathering on the side toward Catania, and hung in a dark mass about half way down the mountain. Groups of the villagers were gathered in the streets which looked upward to Etna, and discussing the chances of an eruption. "Ah," said an old peasant, "the Mountain knows how to make himself respected. When he talks, everybody listens." The sound was the most awful that ever met my ears. It was a hard, painful moan, now and then fluttering like a suppressed sob, and had, at the same time, an expression of threatening and of agony. It did not come from Etna alone. It had no fixed location; it pervaded all space. It was in the air, in the depths of the sea, in the earth under my feet—everywhere, in fact; and, as it continued to increase in violence, I experienced a sensation of positive pain.

6. There was a strong smell of sulphur in the air, and the thick white pants of smoke from the lower crater continued to increase in strength. The sun was fierce and hot, and the edges of the sulphureous clouds shone with a dazzling whiteness. A mounted soldier overtook us, and rode beside the diligence, talking with the postilion. He had been up to the mountain, and was taking his report to the governor of the district. The heat of the day and the continued tremor of the air lulled me into a doze, when I was suddenly aroused by a cry from the soldier, and a sudden stopping of the diligence. At the same time there was a terrific peal of sound, followed by a jar which must have shaken the whole island. We looked up to Etna, which was, fortunately, in full view before us. An immense mass of snow-white smoke had burst up from the crater, and was rising perpendicularly into the air, its rounded volumes rapidly whirling one over the other, yet urged with such impetus that they only rolled outward after they had ascended to an immense height.

7. It might have been one minute or five—for I was so entranced by this wonderful spectacle that I lost the sense of time—but it seemed instantaneous (so rapid and violent were the effects of the explosion), when there stood in the air, based on the summit of the mountain, a mass of smoke four or five miles high, and shaped precisely like the Italian pine-tree. Words can not paint the grandeur of this mighty tree. Its trunk of columned smoke, one side of which was silvered by the sun, while the other in shadow was livid with red flame, rose for more than a mile before it sent out its cloudy boughs. Then, parting into a thousand streams, each of which again threw out its branching tufts of smoke, rolling and waving in the air, it stood in intense relief against the dark blue of the sky. Its rounded masses of foliage were dazzlingly white on one side, while, in the shadowy depths of the branches, there was a con-

stant play of brown, yellow, and crimson tints, revealing the central shaft of fire. It was like the tree celebrated in the Scandinavian sagas, as seen by the mother of Harold Hardrada—that tree, whose roots pierced through the earth, whose trunk was the color of blood, and whose branches filled the uttermost corners of the heavens.

8. This outburst seemed to have relieved the mountain, for the tremors were now less violent, though the terrible noise still droned in the air and earth and sea. And now, from the base of the tree, three white streams slowly crept into as many separate chasms, against the walls of which played the flickering glow of the burning lava. The columns of smoke and flame were still hurled upward, and the tree, after standing about ten minutes—a new and awful revelation of the active forces of nature—gradually rose and spread, lost its form, and, slowly moved by a light wind (the first that disturbed the dead calm of the day), bent over to the eastward. We resumed our course. The vast belt of smoke at last arched over the strait, here about twenty miles wide, and sank toward the distant Calabrian shore. As we drove under it, for some miles of our way, the sun was totally obscured, and the sky presented the singular spectacle of two hemispheres of clear blue, with a broad belt of darkness drawn between them. There was a hot, sulphurous vapor in the air, and showers of white ashes fell from time to time. We were distant about twelve miles in a straight line from the crater; but the air was so clear, even under the shadow of the smoke, that I could distinctly trace the downward movement of the rivers of lava.

9. This was the eruption, at last, to which all the phenomena of the morning had been only preparatory. For the first time in ten years the depths of Etna had been stirred, and I thanked God for my detention at Malta, and the singular hazard of travel which had brought me here,

to his very base, to witness a scene, the impression of which I shall never lose to my dying day. Although the eruption may continue, and the mountain pour forth fiercer fires and broader tides of lava, I can not but think that the first upheaval, which let out the long-imprisoned forces, will not be equaled in grandeur by any later spectacle.

10. After passing Taormina, our road led us under the hills of the coast, and although I occasionally caught glimpses of Etna, and saw the reflection of fires from the lava which was filling up his savage ravines, the smoke at last encircled his waist, and he was shut out of sight by the intervening mountains. We lost a bolt in the deep valley opening on the sea, and during our stoppage I could still hear the groans of the mountain, though farther off, and less painful to the ear. As evening came on, the beautiful hills of Calabria, with white towns and villages on their sides, gleamed in the purple light of the setting sun. We drove around headland after headland, till the strait opened, and we looked over the harbor of Messina to Cape Faro, and the distant islands of the Tyrrhene Sea.

Bayard Taylor.

EARTHQUAKES IN CALABRIA IN THE YEAR 1638.

1. An account of this dreadful earthquake is given by the celebrated Father Kircher. It happened while he was on his journey to visit Mount Etna and the rest of the wonders that lie toward the south of Italy. Kircher is considered by scholars as one of the greatest prodigies of learning.

2. Having hired a boat, in company with four more, we launched from the harbor of Messina, in Sicily, and arrived the same day at the promontory of Pelorus. Our destina-

tion was for the city of Euphemia, in Calabria, where we had some business to transact, and where we designed to tarry for some time. However, Providence seemed willing to cross our design, for we were obliged to continue three days at Pelorus, on account of the weather; and though we often put out to sea, yet we were as often driven back. At length, wearied with the delay, we resolved to prosecute our voyage; and, although the sea seemed more than usually agitated, we ventured forward.

3. The Gulf of Charybdis, which we approached, seemed whirled round in such a manner as to form a vast hollow, verging to a point in the center. Proceeding onward, and turning my eyes to Etna, I saw it cast forth large volumes of smoke, of mountainous sizes, which entirely covered the island and blotted out the very shores from my view. This, together with the dreadful noise and sulphurous stench which was strongly perceived, filled me with apprehensions that some more dreadful calamity was impending. The sea itself seemed to wear an unusual appearance; they who have seen a lake in a violent shower of rain, covered all over with bubbles, will conceive some idea of its agitations. My surprise was still increased by the calmness and serenity of the weather; not a breeze nor a cloud, which might be supposed to put all nature thus into motion. I therefore warned my companions that an earthquake was approaching; and, after some time, making for the shore with all possible diligence, we landed at Tropea, happy and thankful for having escaped the threatening dangers of the sea.

4. But our triumphs at land were of short duration; for we had scarcely arrived at the Jesuits' College in that city when our ears were stunned with a horrid sound resembling that of an infinite number of chariots driven furiously forward, the wheels rattling and the thongs cracking. Soon after this a most dreadful earthquake en-

sued, so that the whole tract upon which we stood seemed to vibrate as if we were in the scale of a balance that continued wavering. This motion, however, soon grew more violent; and being no longer able to keep my legs, I was thrown prostrate upon the ground. In the mean time the universal ruin around me redoubled my amazement. The crash of falling houses, the tottering of towers, and the groans of the dying, all contributed to raise my terror and despair.

5. After some time, however, finding that I remained unhurt amid the general concussion, I resolved to venture for safety; and, running as fast as I could, I reached the shore, but almost terrified out of my reason. I did not search long here till I found the boat in which I had landed; and my companions also, whose terrors were even greater than mine. Our meeting was not of that kind where every one is desirous of telling his own happy escape; it was all silence, and a gloomy dread of impending terrors.

6. Leaving this seat of desolation, we prosecuted our voyage along the coast; and next came to Rochetta, where we landed, although the earth still continued in violent agitations. But we had scarcely arrived at our inn when we were once more obliged to return to the boat; and in about half an hour we saw the greater part of the town, and the inn at which we had put up, dashed to the ground, burying inhabitants beneath the ruins.

7. In this manner, proceeding onward in our little vessel, finding no safety at land, and yet, from the smallness of our boat, having but a very dangerous continuance at sea, we at length landed at Lopizium, a castle midway between Tropea and Euphemia, the city to which, as I said before, we were bound. Here, wherever I turned my eyes, nothing but scenes of ruin and horror appeared; towns and castles leveled to the ground; Stromboli, though at sixty miles distance, belching forth flames in an unu-

sual manner, and with a noise which I could distinctly hear.

8. But my attention was quickly turned from more remote to contiguous danger. The rumbling sound of an approaching earthquake, which we by this time were grown acquainted with, alarmed us for the consequences; it every moment seemed to grow louder, and to approach nearer. The place on which we stood now began to shake most dreadfully; so, being unable to stand, my companions and I caught hold of whatever shrub grew next to us and supported ourselves in that manner.

9. After some time, this violent paroxysm ceasing, we again stood up in order to prosecute our voyage to Euphemia, which lay within sight. In the mean time, while we were preparing for this purpose, I turned my eyes toward the city, but could see only a frightful dark cloud that seemed to rest upon the place. This the more surprised us as the weather was so very serene. We waited, therefore, till the cloud had passed away; then turning to look for the city, it was totally sunk. Wonderful to tell! nothing but a dismal and putrid lake was seen where it stood.

10. We looked about to find some one that could tell us of its sad catastrophe, but could see no person. All was become a melancholy solitude, a scene of hideous desolation. Thus proceeding pensively along in quest of some human being that could give a little information, we at length saw a boy sitting by the shore, and appearing stupefied with terror. Of him, therefore, we inquired concerning the fate of the city; but he could not be prevailed upon to give us any answer. We entreated him, with every expression of tenderness and pity, to tell us, but his senses were quite wrapped up in the contemplation of the danger he had escaped. We offered him some victuals, but he seemed to loathe the sight. We still persisted in our offices of kindness, but he only pointed to the place of the city,

like one out of his senses; and then, running up into the woods, was never heard of after.

11. Such was the fate of the city of Euphemia; and, as we continued our melancholy course along the shore, the whole coast, for the space of two hundred miles, presented nothing but the remains of cities, and men scattered, without a habitation, over the fields. Proceeding thus along, we at length ended our distressful voyage by arriving at Naples, after having escaped a thousand dangers both at sea and land.

Goldsmith.

THE GREAT EARTHQUAKE AT LISBON.

1. On the 1st of November, 1755, the people of Lisbon rose joyfully from their beds at an early hour of the morning. It was All Saints' Day, and the church had resolved that it should be kept with unusual splendor.

2. The churches were decked out with unaccustomed brilliancy. Twice as many tapers as usual were provided and lit upon the altars. The whole of the church's effective army of ecclesiastics, including the Grand Inquisitor, priests, monks, nuns, and the choristers lately imported from Rome, was marshalled for the occasion.

3. For a moment, on the afternoon of the 31st of October, the vigilant managers had feared that the weather would defeat their hopes. The atmosphere was gloomy; the sun had set in a dark, dense cloud. As a long drought had prevailed, there was some ground for anticipating rain on the morrow. But when day broke on the 1st, the ground was dry, the air free from moisture. Over the river and bay hung a dense, dark fog. The sea was as smooth as glass. Not a breath of wind stirred, and the dawn promised a lovely day—a day, said the priests, suited

to the anniversary, and to the devout plans of the faithful. As the sun rose, the fog gradually gathered itself from the sea and earth-level, and rose into the air. Glad crowds issued forth from the houses, and, ere the day had fully broken, the town began to witness that peculiar combination of religious ceremony with profane amusement which usually marks the high days of the Catholic Church on the European continent.

4. And now the bells are ringing merry or solemn chimes; on one side, the slow, thick tread of a procession, preceded by the tinkling of censers and the monotonous chant of choristers, breaks the morning stillness; on the other, gay voices are mingled joyously, maidens are laughing and blushing at bold pleasantries, and dashing caballeros, with impudent air, are swaggering through the throng. All Lisbon is afoot; all Lisbon has promised itself a happy day on this 1st of November. But hark! Above the dull tramp of the friars, above the bright laughter of the maidens, a new sound strikes the ear—a sound not to be compared to anything on earth—such a sound, perhaps, as the Israelite stragglers may have heard when the Egyptian war-chariots rolled heavily over the stones in the bed of the Red Sea. 'Tis not thunder, for 'tis beneath our feet. Nor the report of distant cannons, for 'tis close at hand. Nor the rattle of wheels, for it comes from the sea. Yet it resembles all three. Small leisure have the startled people to speculate on its cause.

5. The friars have just looked up from the breviaries, the choristers have missed the note in their plain chant, the men and maidens have suddenly grown serious, when, in the space of a second, the hoarse, low sound swells, swells, swells, till it deafens the ear, and at the same moment a swift earth-wave sweeps through the city. With a stunning crash, walls and houses, steeples and monuments, fall heavily to the ground. The air is darkened by the clouds of dust, and

none can see before him. A foul sulphureous gas impregnates the atmosphere. To breathe is scarcely less fatal than to be deprived of breath.

6. Then begins a headlong rush of people no one knows whither. Men fly from their houses into the street, to be crushed by the very walls and roofs which just now sheltered them. Others crouch down where they are, and pass noiselessly, insensibly out of existence in the general ruin. Groups gather round the priests and the painted symbols of religion, and pray wildly for *miséricorde.* Some one cries, "The end of the world has come!" Another, rousing himself from despair, shouts, "To the quay! to the quay!" And to the quay the frightened concourse run, trampling the weaker in their blind haste.

7. Two or three minutes have elapsed, and the quay of the Tagus is overloaded with human beings. Again the awful rumbling is heard, and again the earth-wave flies through the city, and crash, crash fall walls and edifices. This time the earthquake moves with short, quick jerks. Nothing resists it. In the midst of the crowd on the quay the priests are offering thanks for their preservation from this second shock, when all eyes are suddenly turned toward the water. In the air a dead calm prevails, but the sea is lashed into fury by some unknown force. "The sea is coming in upon us; we shall be lost, we shall be lost!" cries the agonized crowd.

8. The words have scarcely been spoken when the spray is dashed over the quay, and the wave follows. Over quay and shore, through the streets and squares, into the houses and over the smoking ruins, the huge wave, fifty feet high, rushes furiously, carrying everything before it. Ships are landed on the roofs of fallen houses, smaller crafts are whirled to the very outskirts of the city. When the wave subsides, the survivors look in vain for the quay and the throng which stood there two minutes ago. All are gone.

The quay itself has sunk to unknown depths, and neither any fragment thereof nor any trace of the thousands who had sought refuge on its surface is ever seen again. The submarine chasm which had gaped to receive them must have closed upon their living bodies and buried them fathoms and fathoms deep. Even the few vessels which were moored to the quay were submerged with it, and buried in a like manner.

9. Six minutes had elapsed since the rumbling sound was first heard, and 60,000 souls had perished. Again the survivors thronged the open space, which now, as the neighboring edifices had fallen, offered a refuge that might reasonably be considered safe. In prayer and agony they waited for the next shock. But the earthquake had expended its strength. Minutes, then hours, elapsed without fresh shocks. Lisbon began to breathe again. About noon a vibration was heard, and a wave once more swept through the city, but there was little left to destroy, and its only effect was to close several chasms which had opened in the walls of the houses. Fires had burst forth from the churches; smoke mingled with the dust, and darkened the sky.

10. For more than a week stupor paralyzed the survivors of the earthquake. The fire raged six days, and was only extinguished by the exertions of the Marquis of Pombal, who, like all great men, drew courage and energy from the greatness of the peril. Thieves swarmed over the ruins, until the King erected a score or more of scaffolds and decorated each with the corpse of a robber caught in the act.

11. This earthquake is the most wonderful on record. Humboldt estimates that it was felt over an area four times greater than that of Europe. The Portuguese mountains rocked. On the southern shore of the Mediterranean the earth-wave was as fatally experienced as at Lisbon. A town near Morocco is said to have been swallowed up with

all its inhabitants. Strange phenomena appeared in the Alps and interior of Europe. Springs were dried up, and the water of lakes violently agitated and discolored. On the coast of Sweden the sea rushed upon the land with extraordinary fury. England was so shaken in some places that men were thrown from their seats. A heavy wave rolled into the harbor of Cork, in Ireland, washing the vessels from their moorings and submerging the quays.

12. At Antigua, and several of the West India islands, the sea rose suddenly twenty feet, and the water was as black as ink. Travelers on the western lakes, and some of the French officers who were on the line of the Ohio (it was the year of General Braddock's defeat at Fort Duquesne), report that they felt an earthquake in the afternoon of the day.

13. Ships at sea on the Atlantic felt it distinctly, and the sailors sprang from their berths in belief that the vessel had struck a rock. So well established are its travels that philosophers have been enabled to specify its progress at twenty miles an hour.

Harper's Magazine.

EARTHQUAKES IN AMERICA IN 1811–'12.

1. THE disturbance began by the appearance of a new island in the Azores. On the 30th of January, 1811, the inhabitants of St. Michael were surprised to see ashes and dust and fragments of rock bursting forth from the ocean. The eruption continued for several days, at the end of which time a solid island was formed, chiefly covered by a volcanic mountain, with an active crater in the center. The discharge did no injury, and the island *anadyomene* was christened Sabrina.

2. Five months afterward an earthquake took place in

the next link in the volcanic chain—the island of St. Vincent, in the West Indies. It was not violent, nor very destructive; but, like the volcano Sabrina, its activity was incessant. Another five months elapsed without particular change, when, in November and December, 1811, shocks were felt in the valley of the Mississippi, in the vicinity of New Madrid. They were sharp, frequent, and often very destructive. At times a wave swept over the soil as though it had been fluid, bending trees till their branches touched the ground, first on one side, then on the other. Pools of water were suddenly seen to cover what had always been dry land; then, after an hour or two, to subside and disappear. In some places the soil subsided in like manner to the depth of some eight or ten feet; in others, hilly ridges were thrown up. Thirty-five years afterward Sir Charles Lyell visited the locality, examined the "sunk ground," and saw the "sink-holes" out of which the eruption had taken place; he agrees with Humboldt in considering the phenomenon as one of the most curious on record, considering the isolation of the locality, and the distance which divides it from an active volcano.

3. At the very time New Madrid began to be shaken, a sharp shock was felt at Caracas, a sea-port town in Venezuela. It was not much noticed, and business went on as usual.

4. During the following three months the ground near New Madrid, the island of St. Vincent, and portions of the Venezuelean shore never ceased to quake. Tremblings were experienced daily. Still no one seemed to have looked for any greater disaster. Immemorial security from earthquakes explains the confidence of the dwellers on the Mississippi, and as for the Venezuelans, the authorities in the Spanish countries have always discountenanced any like apprehensions of this kind. In Mexico, for instance, as Humboldt tells us, those who have fled to escape an earth-

quake were heavily fined or imprisoned ; the magistrates used coolly to announce that "they," in their wisdom, would know when there was actual danger, and would give orders for flight.

5. Reassured, perhaps, by some similar consolation, the people of Caracas and La Guayra spent the morning of the 26th of March in the ceremonies and processions peculiar to Holy Week in Catholic countries. "Business," says Walker, who was an eye-witness, "was entirely suspended ; the inhabitants appeared in their gayest attire ; the females and children were loaded with jewelry ; the streets were swept and partially strewed with flowers. The weather was peculiarly fine ; the sun shone brightly, but not oppressively, from the deep-blue sky, on the wide expanse of which not a cloud was to be seen. The streets were gay with passengers, who sauntered along in careless groups ; no sounds were heard but those of amusement and hilarity."

6. Upon this glad scene, suddenly, at twenty minutes past four, broke a low, rumbling noise, coming evidently from the bowels of the earth. Still so blindly confident of security were the people that they quietly observed to each other that the sound was that of a troop of horse galloping down a neighboring street. Soon, however, the noise increased, and the ground began to tremble. Then the cry arose from the terrified crowd, "*Teramoto !*"

7. At the same moment the walls of the houses began to crack, and the plaster to fall. The wiser of the inhabitants rushed to the open squares and the center of the crossings, but many, paralyzed by fear, fell on their knees where they stood, and prayed wildly. Shock succeeded shock with increasing rapidity and vehemence.

8. The priests, with the peculiar courage of their order, energetically called upon the faithful to take refuge in the churches, as they assured them that the earthquake would not injure the sanctuaries of God. Numbers obeyed the

appeal, and flocked round the altars. They were still thronging in when the earthquake culminated in one terrific crash. Half the city crumbled, the churches, being the highest buildings, falling among the first, and burying priests and faithful together. For a few moments after the last shock the air was so darkened by the clouds of dust which arose from the ruin that nothing could be seen. When the dust blew away, desolation stared the survivors on every side, and to the hoarse rumbling of the earthquake had succeeded the shrieks and moans of the unfortunates who lay buried in the ruins. Mr. Walker noted that from the first subterranean noise to the final crash *not more than one minute had elapsed*—a minute in which disasters to fill a century had been condensed. Over fifteen thousand persons had perished. Caracas was destroyed. La Guayra was partially respited, only to meet the same fate a week afterward.

9. But the convulsive force had at length found an exit. The earthquake at Caracas took place on the 26th of March ; that which overwhelmed La Guayra on the 4th of April ; on the 30th of April a new volcano burst into activity on the Island of St. Vincent, and ashes from the eruption were carried windward as far as Barbadoes. The island itself was completely destroyed for agricultural purposes.

Harper's Magazine.

MONTE NUOVO.

1. The region about Naples in Italy is volcanic. About ten miles east of the city is the noted volcano Mount Vesuvius, and about eight miles west is a portion of country which from the earliest times on record has been the center of volcanic action. Hot springs abound, and, in ancient

times, the city of Baiæ, which was here built, became a watering-place for wealthy Roman citizens, and was specially noted for its hot baths. In the immediate vicinity is the Solfatara, an opening in the ground, which is evidently the crater of an old volcano, from which smoke almost constantly issues. In 1538 this whole region was greatly agitated by earthquakes, and in September of that year fire issued from the ground, throwing up immense quantities of earth and ashes for the period of several weeks, and when the commotion subsided it was found that a new mountain nearly five hundred feet high had been formed. This is called Monte Nuovo. The following vivid account of the formation is from an eye-witness, written immediately after the occurrence :

2. "It is now ten years that this province of Campagna has been afflicted with earthquakes, the country about Pozzuolo much more than any other parts ; but on the 27th and 28th of the month of September last, the earthquakes did not cease, day or night, in the above-mentioned city of Pozzuolo. That plain which lies between the Lake of Averno, the Monte Barbaro, and the sea, was raised a little, and many cracks were made in it, from some of which issued water ; and at the same time the sea, which was very near the plain, dried up about two hundred paces, so that the fish were left on the sand, a prey to the inhabitants of Pozzuolo.

3. "At last, on the 29th of the said month, about two hours in the night, the earth opened near the lake, and discovered a horrid mouth, from which were vomited furiously, smoke, fire, stones, and mud, composed of ashes ; making at the time of its opening a noise like very loud thunder. The fire that issued from this mouth went toward the walls of the unfortunate city ; the smoke was partly black and partly white : the black was darker than darkness itself, and the white was like the whitest cotton ; these smokes

rising in the air seemed as if they would touch the vault of heaven; the stones that followed were by the devouring flames converted to pumice, the size of which (of some, I say) were much larger than an ox.

4. "The stones went about as high as a cross-bow can carry, and then fell down, sometimes on the edge, and sometimes into the mouth itself. It is very true that many of them in going up could not be seen, on account of the dark smoke; but, when they returned from the smoky heat, they showed plainly where they had been by the strong smell of fetid sulphur, just like stones that have been thrown out of a mortar, and have passed through the smoke of inflamed gunpowder. The mud was of the color of ashes, and at first very liquid, then by degrees less so; and in such quantities that in less than twelve hours, with the help of the above-mentioned stones, a mountain was raised of a thousand paces * in height. Not only Pozzuolo and the neighboring country was full of this mud, but the city of Naples also, the beauty of whose palaces was, in a great measure, spoiled by it. The ashes were carried as far as Calabria by the force of the winds, burning up in their passage the grass and high trees, many of which were borne down by the weight of them. An infinity of birds, and numberless animals of various kinds, covered with this sulphurous mud, gave themselves up as a prey to man.

5. "Now this eruption lasted two nights and two days without intermission, though, it is true, not always with the same force, but more or less. When it was at its greatest height, even at Naples you heard a noise or thundering, like heavy artillery when two armies are engaged. The third day the eruption ceased, so that the mountain made its appearance uncovered, to the no small astonishment of

* The meaning is one thousand paces in ascent. The distance from the sea in a straight line is about a quarter of a mile, and the height of the mountain above sea-level is four hundred and forty feet.

every one who saw it. On this day, when I went up with many people to the top of this mountain, I saw down into its mouth, which was a round cavity about a quarter of a mile in circumference, in the middle of which the stones that had fallen were boiling up, just as in a great caldron of water that boils on the fire.

6. "The fourth day it began to throw up again, and the seventh much more, but still with less violence than on the first night. It was at this time that many people, who were unfortunately on the mountain, were either suddenly covered with ashes, smothered with smoke, or knocked down by stones, burned by the flames, and left dead on the spot. The smoke continues to this day, and you often see in the night-time fire in the midst of it. Finally, to complete the history of this new and unforeseen event, in many parts of the new-made mountain sulphur begins to be generated."

PART IV.

RIVERS AND LAKES.

EGYPT AND THE NILE.

1. The Nile landscape is not monotonous, although of one general character. In that soft air the lines change constantly, but imperceptibly, and are always so delicately lined and drawn that the eye floats satisfied along the warm tranquillity of the scenery.

2. Egypt is the valley of the Nile. At its widest part it is, perhaps, eight or ten miles broad, and is walled upon the west by the Libyan Mountains, and upon the east by the Arabian. The scenery is simple and grand. The forms of the landscape harmonize with the forms of the impression of Egypt in the mind. Solemn and still and inexplicable sits that antique mystery among the flowery fancies and broad green fertile feelings of your mind and contemporary life, as the Sphinx sits upon the edge of the grain-green plain. No scenery is grander in its impression, for none is so symbolical. The land seems to have died with the race that made it famous—it is so solemnly still.

3. Day after day unrolls to the eye the perpetual panorama of fields wide-waving with the tobacco, and glittering with the golden-blossomed cotton, among which half-naked men and women are lazily working. Palm-groves stand, each palm a poem, brimming your memory with beauty.

You know that you are passing the remains of ancient cities, as the ibis loiters languidly before the rising and falling north wind, or is wearily drawn against the stream by the crew filing along the shore. An occasional irregular reach of mounds and a bit of crumbling wall distract imagination as much with the future as the past, straining to picture the time when New York shall be an irregular reach of mounds or a bit of crumbling wall.

4. The austere Arabian mountains leave Cairo with us, and stretch in sad monotony of strength along the eastern shore. There they shine sandily, the mighty advanced guard of the desert—"Here," say they, and plant their stern feet for ever, and over their shoulders sweep and sing the low wild winds from mid-Arabia—"sand-grains outnumbering all thy dear drops of water are behind us, to maintain our might and subdue thee, fond, fair river!" But it glides unheeded at their base, litherly swinging its long, unbroken phalanx of sweet waters—waving gently against the immovable cliffs like palm-branches of peace against a foe's serried front.

5. Presently the Libyan Heights appear, and the river is invested. A sense of fate then seizes you, and you feel that the two powers must measure their might at last, and you go forward to the cataract with the feeling of one who shall behold terrible battles.

6. Yet the day, mindful only of beauty, lavishes all its light upon the mighty foes, adorning them each impartially for its own delight. Along the uniform Arabian highland it swims and flashes, and fades in exquisite hues, magically making it the sapphire wall of the imagination, which fertile Arabia is; or in the full gush of noon standing it along the eastern horizon as an image of those boundless deserts which no man can conceive more than the sea until he beholds them.

7. In the early morning flocks of water-birds are ranged

along the river—herons, kingfishers, flamingoes, ducks, ibis —a motley multitude, in the shadows of the high clay banks, or on the low sandy strips. They spread languid wings and sail snowily away. The sun strikes them into splendor. They float and fade, and are lost in the brilliance of the sky. Under the sharp, high rocks, at the doors of their cliff retreats, sit sagely the cormorants, and meditate the passing Howadji. Like larger birds reposing shine the sharp sails of boats, near or far. Their images strike deep into the water and tremble away.

8. Then come the girls and women to the water-side, bearing jars upon their heads. On the summit of the bank they walk erect and stately, profile drawn against the sky. Bending and plashing, and playing in the water, with little jets of water that would brightly flash, if we could see them, they fill their jars, and in a long file recede and disappear among the palms. Over the brown mud villages the pigeons coo and fly, and hang by hundreds upon the clumsy towers built for them, and a long pause of sun and silence follows. Presently turbaned Abraham, with flowing garment and snowy beard, leaning upon his staff, passes with Sarah along the green path on the river's edge toward Memphis and King Pharaoh. On the opposite desert lingers Hagar with Ishmael pausing and looking back.

9. The day deepens; calmer is the calm. It is noon, and magnificent Dendereh stands inland on the desert edge of Libya, a temple of rare preservation, of Isis-headed columns, with the same portrait of Cleopatra upon the walls—a temple of silence, with dark chambers cool from the sun, and the sculptures in cabinet squares upon the walls. Let it float by, no more than a fleeting picture for ever. It is St. Valentine's day, but they are harvesting upon the shores, resting awhile now till the sun is sloping. The shadeless Libyan and Arabian highlands glare upon the burning sun. The slow sakias sing and sigh. The palms

are moveless as in the backgrounds of old pictures. To our eyes it is perpetual picture slowly changing. The shore-lines melt into new forms, other, yet the same. We know not if we wake or sleep, so dreamlike exquisite is either sleeping or waking.

10. The afternoon declines as we drift slowly under Aboojayda with a soft south wind. Its cliffs are like masses of old masonry, and wheeling hawks swoop downward to its sharp, bold peaks. Ducks are diving in the dark water of its shadow. The white radiance of the noon is more rosily tinged. Every form is fairer in the westering light. We left Asyoot yesterday ; at evening we saw its many minarets fade in the dark of the hills, like the strains of arabesqued Arabian songs dying in the twilight, and at dusk a solitary jackal prowled stealthily along the shore. Joseph's brethren pass with camels and asses, to buy corn in Egypt. Geese in arrowy flight pierce the profound repose of the sky. Golden gloom gathers in the palm-groves. Among the scaled trunks, like columns of a temple, passes a group of girls attending Pharaoh's daughter. Shall we reach the shore before her, and find the young Moses, Nile-nursed with the sweet sound of calmly flowing waters, and the sublime silence of the sky ?

11. The sun sets far over Libya. He colors the death of the desert as he tinges the live sea in his setting. Dark upon the molten west, in waving, rounding lines, the fading flights of birds are yet traced, seeking the rosy south, or following the sun. The day dies divinely as it lived. Primeval silence surrounded us all the time. What life and sound we saw and heard no more jarred the silence than the aurora lights the night.

12. The dazzling moon succeeds, and the night is only a day more delicate. A solitary phantom bark glides singing past—its sails as dark below as above, twin-winged in air and water. Whither, whither, ye ghostly mariners ?

Why so sad your singing? Why so languid-weary the slow plash of oars?

13. Or only the stars shine. Strange that, in a land where stars shine without the modesty of mist, women veil their faces. Clearly Mohammed received his inspired leaves in a star-screened cave, and not in the full face of heaven. But let him still suspended be, for dimly glancing among the palms, silverly haloed by the stars that loved his manger — behold the young child and mother, with Joseph leading the ass, flying into the land!

George W. Curtis.

THE DEAD SEA.

1. The Dead Sea lies southeast from Jerusalem about twenty-five miles, and is the receptacle of the water of the river Jordan on the north, of the Wady-el-Seib on the south. All the waters that pour into this sea are soft and fresh, but the sea itself is acrid and salt. Dr. Robinson, Eliot Warburton, and other travelers found the water sharp and burning to the eyes, the nostrils, and the mouth. It is saturated with mineral salts some 3½ pounds to every gallon. It contains common salt, chloride and bromide of magnesium, and muriate of lime in large quantities. These, no doubt, come from the masses of rock which line the shores; balls of pure sulphur, too, are found on the shores and the surrounding plain. The strength of these ingredients is heightened by the continual evaporation which ever goes on, and which veils the surface of the lake with a peculiar mist.

2. The weight of the water, owing to these ingredients, is 12½ per cent. greater than that of sea-water. This explains its surprising buoyancy, which enabled Dr. Robinson, who could never swim before, to swim, sit, lie, and

walk in it. Indeed, it is impossible in swimming to keep the legs below the surface.

3. It was once believed that no living thing could be found in it, and that birds flying over it would drop down dead. These are disproved by recent travelers, who have shot ducks on its surface, while snipe, partridges, nightingales, doves, and hares are found along the shores; and Ehrenberg discovered eighteen species of inferior creatures in its mud. The sea is 46 miles long, and its greatest width is about 10 miles. It is divided by a peninsula or arm extending from the eastern shore; the waters to the north reach the great depth of 1,300 feet, while the lagoon south of it is shallow.

4. Perhaps the most remarkable fact is that it lies in a tremendous hollow or depression of the earth 1,312 feet below the Mediterranean, to which there is no apparent outlet. No such strange formation exists elsewhere on the earth's surface, and, when the terrible convulsion which caused it took place, it is impossible to determine.

5. At the southwest corner of the lake, below where the ravines break down through the inclosing heights, the beach is encroached on by the salt mountain or ridge of Khashur Usderm. This remarkable object has been hitherto but imperfectly known. It is a low, level ridge or dike, several miles in length. Its northern portion runs south-southeast, but after more than half its length it makes a sudden and decided bend to the right, and then runs southwest. It is from 300 to 400 feet in height, of considerable width, consisting of a body of crystallized rock-salt, more or less solid, covered with a capping of chalky limestone and gypsum. The lower portion, the rock-salt, rises abruptly from the glossy plain at its eastern base, sloping back at an angle of not more than 45°, often less.

6. We make the following extract from the journal of Lieutenant Lynch, of the American Exploring Expedition,

giving his first experience in navigating the sea: "A fresh north wind was blowing as we rounded the point and entered the sea from the Jordan. We endeavored to steer a little to the north of west to make a true west course, and threw the patent log overboard to measure the distance; but the wind rose so rapidly that the boats could not keep head to the wind, and we were obliged to haul the log in. The sea continued to rise with the increasing wind, which gradually freshened to a gale, and presented an agitated surface of foaming brine; the spray, evaporating as it fell, left incrustations of salt upon our clothes, our hands, and faces, and, while it conveyed a prickly sensation wherever it touched the skin, was, above all, exceedingly painful to the eyes. The boats, heavily laden, struggled sluggishly at first; but, when the wind freshened in its fierceness, from the density of the water it seemed as if their bows were encountering the sledge-hammers of the Titans, instead of the opposing waves of an angry sea.

7. "Finding that we were losing every moment, and with the lapse of each succeeding one danger increased, we kept away from the northern shore, in the hope of being yet able to reach it, our arms, our clothes, and skins coated with a greasy salt, and our lips, eyes, and nostrils smarting excessively. How different was the scene before the submerging of the plain, which was 'even as the garden of the Lord!'

8. "But, although the sea had assumed a threatening aspect, and the fretted mountains, sharp and incinerated, loomed terrific on either side, and salt and ashes mingled with its sands, and fetid sulphurous springs trickled down its sides, we did not despair; awe-struck but not terrified, fearing the worst but hoping for the best, we prepared to spend a dreary night upon the dreariest waste we had ever seen.

9. "At 5. 58 the wind instantaneously abated, and with

it the sea as rapidly fell, the water, from its ponderous quality, settling as the agitating cause had ceased to act. Within twenty minutes from the time we bore away from a sea which threatened to ingulf us, we were pulling at a rapid rate over a placid sheet of water that scarcely rippled beneath us : and a rain-cloud which had enveloped the sterile mountains of the Arabian shore lifted up, and left their rugged outlines basking in the light of the setting sun."

Charles W. Eliot.

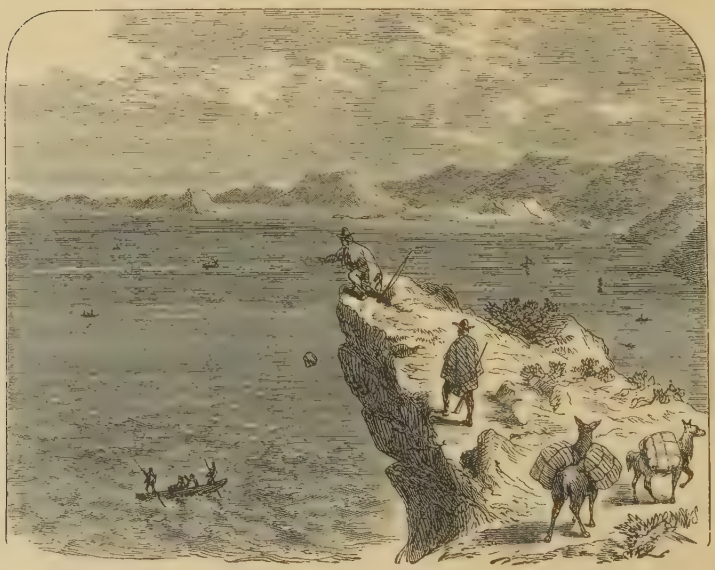
LAKE TITICACA AND ITS SACRED ISLANDS.

1. Lake Titicaca is a long, irregular ellipse in shape, with one fifth of its area at its southern extremity cut nearly off by the opposing peninsulas of Tiquina and Copacabana. Its greatest length is about 120 miles, and its greatest width between 50 and 60 miles. Its mean level is 12,864 feet above the sea. The eastern or Bolivian shore is abrupt, the mountains on that side pressing down boldly into the water. The western and southern shores, however, are relatively low and level, the water shallow and grown up with weeds and rushes, among which myriads of water-fowls find shelter and support.

2. The lake never freezes over, but ice forms near its shores and where the water is shallow. In fact, it exercises a very important influence on the climate of this high, cold, and desolate region. Its waters, at least during the winter months, are from 10° to 12° of Fahrenheit warmer than the atmosphere. The islands and peninsulas feel this influence most perceptibly, and I found barley, pease, and maize, the latter, however, small and not prolific, ripening on these, while they did not mature on what may be called the main land. The prevailing winds are from

the northeast, and they often blow with great force, rendering navigation on the frail *balsas* always slow and difficult, and exceedingly dangerous.

3. Now, sailing in a *balsa* is by no means the perfection of navigation, nor is the craft itself one likely to inspire high confidence. It is simply a float or raft made up of a bundle of reeds tied together fagot-like, in the middle of which the voyager poises himself on his knees, while the Indian *manneros* stand one at each extremity, where they spread their feet apart, and with small and rather crooked



View of Lake Titicaca.

poles for oars strike the water right and left, and then slowly and laboriously propel the *balsa* in the required direction.

4. Of course this action gives the craft a rocking, roll-

ing motion, and makes the passenger feel very much as if he were afloat on a mammoth cigar, predisposed to turn over on the slightest pretext. Then if the water be a little rough, a movement takes place which probably is unequaled in bringing on the unpleasant sensation of seasickness. Some of the *balsas*, however, are large, with sides built up for guards, which can be rigged with a sail for running before the wind, and are capable of carrying as many as sixty people.

5. The largest island is that of Titicaca. It is high and bare, ragged in outline as rugged in surface, six miles long by between three and four in width. This is the sacred island of Peru. To it the Incas traced their origin, and to this day it is held by their descendants in profound reverence. Upon this island, the traditional birthplace of the Incas, are still the remains of a temple of the Sun, a convent of priests, a royal palace, and other vestiges of Inca civilization. Not far distant is the island of Coati, which was sacred to the Moon, the wife and sister of the Sun, on which stand the famous Virgins of the Sun, built around two shrines dedicated to the Sun and Moon respectively, and which is one of the best preserved, as well as one of the most remarkable, remains of aboriginal architecture on this continent. The island of Soto was the Isle of Penitence, to which the Incas of the ruling race were wont to resort for fasting and humiliation, and it has also remains of ancient architecture.

6. At almost the very northern end of the island, and at its most repulsive and unpromising part, where there are no inhabitants or traces of culture, where the soil is rocky and bare and the cliffs ragged and broken, high up where the eye ranges over the broad blue waters from one mountain barrier to the other, from the glittering crests of the Andes to those of the Cordilleras—is the spot the most celebrated and most sacred of Peru. Here is the rock on which

it was believed no bird would light or animal venture, on which no human being dared to place his foot, whence the sun rose to dispel the primal vapors and illume the world, which was plated all over with gold and silver, and covered, except on occasions of the most solemn festivities, with a veil of cloth of the richest color and material, which sheltered the favorite children of the Sun, and the pontiff, priest, and king who founded the Inca opposite.

7. Our guides stopped when it came in view, removed their hats and bowed low and reverently in its direction, muttering a few words of mystic import. But this rock to-day is nothing more than a frayed and weather-worn mass of red sandstone, part of a thick stratum that runs through the island, and which is here disrupted and standing, with its associated shale and limestone layers, at an angle of 45° with the horizon. The part uncovered and protruding above the ground is about 225 feet long and 25 feet high. It presents a rough and broken and slightly projecting face, but behind subsides in a slope coinciding with the declivity of the eminence of which it is a part. In the face are many shelves and pockets, all apparently natural. Excepting that there are traces of walls around it of cut stone, and that the ground in front is artificially leveled, there is nothing to distinguish it from many other projections of the sandstone strata on the island and the main land.

8. To the front and northward of the sacred rock, and distant about 200 paces, are the ruins of a large edifice called *La Chingana*, or the Labyrinth. It is situated on the slope descending to the little bay of Chucaripe, at a point where the ground falls off very abruptly, so that the lower walls must have been twice or three times as high as those on its upper side. Its leading feature is a small court, with terraces cut in the rock, and with a fountain in its center. The rocks facing inward on the court are

all niched, and on each side are masses of buildings, which have evidently been two or three stories in height.

9. The passages leading to the various rooms were narrow and intricate, the doorways low, and the rooms themselves small and dark, almost precluding the notion that they were intended to be inhabited. From its proximity to the rock, and the identity of the leading features with those of other structures of Peru of known purpose, I am inclined to regard the *Chingana* as one of the *Aclahuasas*, or Houses of the Virgins of the Sun, one of which existed on the island, and I found no other building that could have served as a retreat for the vestals.

10. The crest or central ridge of the island is 2,000 feet above the lake, and from it spurs extend downward to the water's edge, dividing the shore into numerous beautiful little valleys, each with its own little landlocked bay. Midway down the sloping valley, amid terraces geometrically laid out and supported by walls of cut stone, niched according to Inca taste, forming three sides of a quadrangle, is a pool 40 feet long, 10 wide, and 5 deep, paved with worked stones. Into this pour four jets of water, each of the size of a man's arm, from openings cut in the stones behind. Over the walls around it droop the tendrils of vines and the stems of plants that are slowly yielding to the frost, and what with odors and tinkle and patter of waters, one might imagine himself in the court of the Alhambra, where the fountains murmur of the Moors, just as the bath of the Inca tells its inarticulate tale of a race departed, and to whose taste and poetry it bears melodious witness.

11. The water comes through subterranean passages from sources now unknown, and never diminishes in volume. It flows to-day as freely as when the Incas resorted here and cut the steep hill-sides into terraces, bringing the earth to fill them, so runs the legend, all the way from the

Valley of Yucay, or Vale of Imperial Delights, four hundred miles distant. However this may be, this is the garden *par excellence* of Callao, testifying equally to the taste, enterprise, and skill of those who created it in spite of the most vigorous of climes and most ungrateful of soils.

12. The palace of the Incas is near by, standing on a natural shelf or terrace overlooking the lake. Its site is beautiful. On either side are terraces, some of them niched and supporting small dependent structures, while a steep hill behind, which bends around it like a half-moon, is also terraced in graceful curves, each defined not alone by its stone facing, but by a vigorous growth of the shrub that yields the *Flor del Inca*, which blossoms here all the year round.

13. The building is rectangular, 51 by 44 feet, and two stories high. The front on the lake is ornamented or relieved on the lower story by four high niches, the two central ones being doorways. On each side are three niches, the central one forming a doorway. It is divided into twelve small rooms of varying sizes. These rooms are about 13 feet high, their walls inclining slightly inward, while their ceiling is formed by flat overlapping stones, laid with great regularity. Every room has its niches, some small and plain, others large and elaborate. The inner as well as the exterior walls were stuccoed with a fine, tenacious clay, possibly mixed with some adhesive substance, and painted. Some patches of this stucco still remain, and indicate that the building was originally yellow, while the inner parts and moldings of the doorways and niches were of different shades of red.

14. The second story does not at all correspond in plan with the first. Its entrance is at the rear on a level with a terrace extending back to the hill, and spreading out in a noble walk faced with a niched wall, and supporting some

minor buildings or summer-houses now greatly ruined. It appears to have no direct connection with the ground-story by stairs or otherwise. The rooms, which are also more or less ornamented with niches, are separated by walls less massive than those below, and do not seem to have been roofed with thatch, as were most of the structures of the Incas.

15. The central part of the front of the second story was not inclosed, although probably roofed, but formed an esplanade 22 feet long and 10 broad, flanked by rooms opening on it. Two niches, raised just enough to afford easy seats, appear in the wall at the back of the esplanade, whence may be commanded one of the finest and most extensive views in the world. The waves of the lake break at your very feet. To the right is the high and diversified peninsula of Copacabana ; in the center of the view the island of Coati, consecrated to the Moon, as was Titicaca to the Sun, and to the right the gleaming Sorata, its white mantles reflected in the waters that spread out like a sea in front. The design of the esplanade is too obvious to admit of doubt, and indicates that the builders were not deficient in taste, or insensible to the grand and beautiful in nature. Tradition assigns the construction of this palace to Inca Yupanqui, who also built the Temple of the Moon, and the convent of the virgins, dedicated to her service in the island of Coati. He built it, so runs the legend, that during his visit he might always have before him the seat and shrine of the Suti-coya, the sister and wife of his parent the Sun.

E. G. Squier.

PART V.

THE ATMOSPHERE, WINDS, AND STORMS.

THE ATMOSPHERE.

1. It is impossible to contemplate the wonderful properties of the atmosphere without a feeling of profound amazement. Whether we regard it as the grand medium of water circulation, through which rivers of vapor lifted from the oceans are carried landward, to be condensed and channel their way back again to the sea; or as the scene of tumultuous storms, generating the lightnings within its bosom, and taking voice in the reverberating thunders; whether as hanging the landscape with gorgeous cloud-pictures, or as the vehicle through which all melody and beauty and fragrance are conveyed to the portals of sense —it is alike strange and interesting.

2. But when we glance at its deeper mysteries, those intimate relations to life which have been disclosed to modern science; when we consider that the vegetable kingdom not only has the same chemical composition as the air, but in its mass is actually derived from it; that the whole architecture and physiology of trees, shrubs, and plants are conformed to atmospheric nutrition, so that in literal truth the forests are but embodied and solidified air—the subject rises to a still higher interest.

3. And more startling yet is the surprise when we rec-

ollect not only that the materials of our own bodily structures, derived from vegetation, have the same atmospheric origin, but that active life, the vital union of body and spirit, and all the powers and susceptibilities of our earthly being, are only maintained by the action of air in our systems—air which we inhale incessantly, day and night, from birth to death. There is an awful life-import in these never-ceasing rhythmic movements of inspiration and expiration, this tidal flux and reflux of the gaseous ocean through animal mechanisms. Shall we question that it is for an exalted purpose? Science has many things to say of the relations of air to life, but it can add nothing to the simple grandeur of the primeval statement that the Creator "breathed into his nostrils the breath of life, and man became a living soul."

E. L. Youmans.

A TORNADO IN OHIO.

1. I HAD left the village of Shawaney, situated on the banks of the Ohio, on my return from Henderson, which is also situated on the banks of the same beautiful stream. The weather was pleasant, and I thought not warmer than usual at that season. My horse was jogging quietly along, and my thoughts were, for once at least in the course of my life, entirely engaged in commercial speculations. I had forded Highland Creek, and was on the eve of entering a tract of bottom land or valley that lay between it and Canoe Creek, when on a sudden I remarked a great difference in the aspect of the heavens. A hazy thickness had overspread the country, and I for some time expected an earthquake, but my horse exhibited no propensity to stop and prepare for such an occurrence. I had nearly arrived at the verge of the valley, when I thought fit to stop near a

brook, and dismounted to quench the thirst which had come upon me.

2. I was leaning on my knees, with my lips about to touch the water, when from my proximity to the earth I heard a distant murmuring sound of an extraordinary nature. I drank, however, and, as I rose on my feet, looked toward the southwest, when I observed a yellowish oval spot, the appearance of which was quite new to me. Little time was left me for consideration, as the next moment a smart breeze began to agitate the taller trees. It increased to an unexpected height, and already the smaller branches and twigs were seen falling in a slanting direction toward the ground. Two minutes had scarcely elapsed when the whole forest before me was in fearful motion. Here and there, where one tree pressed against another, a creaking noise was produced, similar to that occasioned by the violent gusts which sometimes sweep over the country.

3. Turning instinctively toward the direction from which the wind blew, I saw, to my great astonishment, that the noblest trees of the forest bent their lofty heads for a while, and, unable to stand against the blast, were falling to pieces. First the branches were broken off with a crackling noise, then went the upper part of the massy trunks, and in many places whole trees of gigantic size were falling entire to the ground. So rapid was the progress of the storm that, before I could think of taking measures to insure my safety, the tornado was passing opposite the place where I stood. Never can I forget the scene which at that moment presented itself. The tops of the trees were seen moving in the strangest manner, in the central current of the tempest, which carried along with it a mangled mass of twigs and foliage that completely obscured the view.

4. Some of the largest trees were seen bending and writhing under the gale; others suddenly snapped across, and many, after a momentary resistance, fell uprooted to

the earth. The mass of branches, twigs, foliage, and dust that moved through the air, was whirled onward like a cloud of feathers, and, on passing, disclosed a wide space filled with fallen trees, naked stumps, and heaps of shapeless ruins, which marked the path of the tempest. This space was about a fourth of a mile in breadth, and to my imagination resembled the dried-up bed of the Mississippi, with its thousands of planters and sawyers strewed in the sand, and inclined in various degrees. The horrible noise resembled that of the great cataracts of Niagara, and, as it howled along in the track of the desolating tempest, produced a feeling in my mind which it is impossible to describe.

5. The principal force of the tornado was now over, although millions of twigs and small branches, that had been brought from a great distance, were seen following the blast, as if drawn onward by some mysterious power. They were floated in the air for some hours after, as if supported by the thick mass of dust that rose high above the ground. The sky had now a greenish-lurid hue, and an extremely disagreeable sulphureous odor was diffused in the atmosphere. I waited in amazement, having sustained no material injury, until Nature at length resumed her wonted aspect.

6. Many wondrous accounts of the devastating effect of this tornado were circulated in the country after its occurrence. Some log-houses, we were told, had been overturned, and their inmates destroyed. One person informed me that a wire-sifter had been conveyed by the gust to a distance of many miles. Another had found a cow lodged in the fork of a large, half-broken tree. But, as I am disposed to relate only what I have myself seen, I will not lead you into the region of romance, but shall content myself by saying that much damage was done by this awful visitation.

7. The valley is yet a desolate place, overgrown with

briers and bushes, thickly entangled amid the tops and trunks of the fallen trees, and is the resort of ravenous animals, to which they betake themselves when pursued by man, or after they have committed their depredations on the farms of the surrounding district. I have crossed the path of the storm at a distance of a hundred miles from the spot where I witnessed its fury, and again, four hundred miles farther off, in the State of Ohio. Lastly, I observed traces of its ravages on the summits of the mountains connected with the great pine forests of Pennsylvania, three hundred miles beyond the place last mentioned. In all those different parts it appeared to me not to have exceeded a quarter of a mile in breadth.

Audubon.

THE CLOUDS.

1. I BRING fresh showers for the thirsting flowers,
From the seas and the streams;
I bear light shade for the leaves when laid
In their noon-day dreams;
From my wings are shaken the dews that waken
The sweet buds every one,
When rocked to rest on their mother's breast,
As she dances about the sun.
I wield the flail of the lashing hail,
And whiten the green plains under,
And then again I dissolve it in rain,
And laugh as I pass in thunder.

2. I sift the snow on the mountains below,
And their great pines groan aghast;
And all the night 'tis my pillow white,
While I sleep in the arms of the blast.

Sublime on the towers of my skyey bowers,
Lightning my pilot sits,
In a cavern under is fettered the thunder,
It struggles and howls by fits;

Forms and Transitions of Water.

Over earth and ocean, with gentle motion,
This pilot is guiding me,

Lured by the love of the genii that move
In the depths of the purple sea;
Over the rills and the crags and the hills,
Over the lakes and the plains,
Wherever he dream, under mountain or stream,
The spirit he loves remains;
And I all the while bask in heaven's blue smile,
Whilst he is dissolving in rains.

3. The sanguine sunrise, with his meteor eyes,
And his burning plumes outspread,
Leaps on the back of my sailing rack,
When the morning star shines dead.
As on the jag of a mountain crag,
Which an earthquake rocks and swings,
An eagle alit one moment may sit
In the light of its golden wings.
And when sunset may breathe, from the lit sea beneath,
Its ardors of rest and love,
And the crimson pall of eve may fall
From the depth of heaven above,
With wings folded I rest, on mine airy nest,
As still as a brooding dove.

4. I bind the sun's throne with the burning zone,
And the moon's with a girdle of pearl;
The volcanoes are dim, and the stars reel and swim,
When the whirlwinds my banner unfurl.
From cape to cape, with a bridge-like shape
Over a torrent sea,
Sunbeam proof, I hang like a roof,
The mountains its columns be.
The triumphal arch, through which I march,
With hurricane, fire, and snow,

When the powers of the air are chained to my chair,
Is the million-colored bow;
The sphere-fire above its soft colors wove,
Whilst the moist earth was laughing below.

Shelley.

THE HARMATTAN.

1. This is the name given to a wind which, passing over Africa, takes up in its sweep, as is believed, an impalpable dust, and carries it far away to the westward. Strange stories are told of the effects of the harmattan, which is said to check or cure various diseases, heal up most inveterate ulcers, destroy cabinet-work, break window-glass, and stop the motions of a clock or a chronometer. The effects of this wind are sufficiently remarkable in reality, without the aid of imagination to exaggerate them. They bear some resemblance to those of the sirocco of the African desert, and of the levanter of the Grecian Archipelago.

2. The harmattan begins about the middle of December and continues until the latter end of March. Like the sirocco, it has been supposed to take its rise in the deserts of Africa; but, unlike the sirocco, instead of being hot and oppressive, it is a chilling wind. Its direction is always from the land, and it sometimes increases to a strong breeze; it does not, however, blow steadily during the season, but frequently intermits when land- or sea-breezes take place.

3. At the Cape Verd and the Gambia the harmattan appears to form a junction with the northeast trades prevailing there at a certain season, and to blow with little interruption from January until April.

4. It is supposed by some that this wind, in passing over the deserts and lands of Africa, takes up a quantity of sand and dust sufficient to form a floating mass, producing an atmosphere so hazy as frequently to obscure the sun and prevent the sight of the land at the distance of only five miles. At the season of the harmattan, the peculiar atmosphere which accompanies it may be always observed at the Cape Verd Islands, four hundred miles from the continent, and is always settling in quantities sufficient to cover the sails, rigging, and deck of a ship. It is also reported to have been met with seven hundred miles farther westward.

5. The dust of the harmattan has been examined by the microscope in the hands of the celebrated investigator, Ehrenberg, who found that it was composed of infusoria and organisms which belong not to Africa, but to the southeast trade region of South America. It is, therefore, conjectured that the southeast trades may have brought the dust, great as is the distance, from South America.

Robert Tomes.

COLORED RAIN AND SNOW.

1. It has been related by Swammerdam that early one morning in the year 1670 the whole population of the Hague was in an uproar. It was soon discovered that the commotion arose from a mysterious rain of blood, as it was considered by all. The rain must have fallen during the night hours, for the lakes and ditches were known to have been full of water on the preceding evening. People of all classes, high and low, were affected by this apparent miraculous act of Providence, foretelling scenes of approaching war and bloodshed.

2. There happened, however, to be a certain physician in the town, whose scientific curiosity urged him to inquire into the cause of this wonderful phenomenon. He obtained some of the water from one of the canals, analyzed it with a microscope, and found that it really changed color, but that the blood-like red was produced by swarms of small red animals or insects of perfect organization and in full activity.

3. This scientific physician immediately announced the result of his examination of the water; but, though the Hollanders were convinced of the accuracy of his discovery, they did not appear to be anxious to divest the occurrence of prophetic character. On the contrary, they concluded that the sudden appearance of such an innumerable host of red insects was as great a miracle as the raining of actual blood would have been; and in after-years there were many who believed this phenomenon to have been a prediction of the war and desolation which Louis XIV afterward brought into that country.

4. Something analogous to this came under the eye of the writer a few years ago. During a very gloomy rain which fell at Greenwich, a universal deposit of small black flies was found to have taken place. The plants and shrubs in the writer's garden were covered by hundreds of thousands of these insects, in some instances completely hiding the plant from view. Before the rain began not one was noticed. We have been lately informed that a similar deposit occurred at Cambridge about eleven years ago.

5. On the 14th of March, 1813, the inhabitants of Gerace, Calabria, perceived a terrific cloud advancing from the sea, the wind having blown from that direction during the two preceding days. At two o'clock in the afternoon this dense cloud, which gradually changed from a pale to a fiery red, totally intercepted the light of the sun. Shortly after, the town was enveloped in darkness sufficiently great

to excite timid people, who rushed to the cathedral, thinking that the end of the world was approaching.

6. The appearance of the heavens at this moment was unspeakably grand, the fiery red cloud increasing in intensity. Then, amid terrific peals of thunder, accompanied by vivid flashes of lightning, large drops of red rain fell, which were hastily assumed by the excited populace to be either drops of blood or fire. The rain, more or less colored, continued to fall until the evening, when the clouds dispersed, and the people were again restored to their ordinary tranquillity.

7. There are several other records of *red* rain, with similar phenomena to what we have already described, but it is not necessary to enter into any detail, though it is very possible that their origin can not always be traced to the same source. In most cases it can scarcely be doubted that the extremely light particles of which the powder is composed is carried into the upper currents of the atmosphere, either by volcanic action, as we have before suggested, or by a violent whirlwind. The separate particles are then drifted forward until the upper current of air, with which they are now amalgamated, comes into contact with other currents of lower temperature, when they fall to the earth, with the condensed vapor, in the form of colored rain.

8. The Crimson Cliffs near Cape York, Baffin's Bay, discovered by Captain Ross during his first voyage to the Arctic regions, in 1818, excited considerable attention on the return of the expedition to England. The coloring matter of the snow taken from these crimson cliffs being placed by Captain Ross under a microscope, was found "to consist of particles like a very minute round seed, which were exactly the same size, and of a deep-red color; on some of the particles a small dark speck was also seen.

9. "The red matter I am strongly inclined to regard as of vegetable origin, consisting of minute globules, one thou-

sandth to three thousandths of an inch in diameter. I believe their coat to be colorless, and the redness belongs wholly to the contents, which seem to be of an oily nature and not soluble in water. If they are from the sea, there seems no limit to the quantity that may be carried to land by a continued and violent wind—no limit to the period during which they may have accumulated, since they would remain from year to year, undiminished by the processes of thawing and evaporation which remove the snow with which they are mixed."

Edwin Dunkin.

PART VI.

CLIMATE AND VEGETATION.

CONTRASTS OF CLIMATE AND VEGETATION.

1. The climate of the New World, compared with that of the Old, is distinguished by its greater humidity. We have seen in what manner this phenomenon is the consequence of its narrow and lengthened form; of the opening of the great plains—that is, of the two continents almost entire—to the winds of the sea; of the absence of high mountains in the East; in a word, of the configuration and general exposure of this part of the globe. While the Old World, with its compact figure, its vast plateaus, its high lands in the east, receives only an average of seventy-seven inches of water by the year under the tropics, America receives one hundred and fifteen inches. The temperate regions of Europe have thirty-four inches; North America, thirty-nine inches.

2. Thus, the watery element reigns in the New World; add to this that half of its lands are exposed to the rays of the tropical sun, but that, all the conditions being equal, America is, on the whole, a little less warm than the Old World, and we shall have the essential features of its climate. The oceanic climate—this is what America owes to the fundamental forms and the relative disposition of its

lands; while the Old World is indebted to it for the preponderance of the dry and continental climate.

3. The warm and the moist—these are the most favorable conditions for the production of an exuberant vegetation. Now, the vegetable covering is nowhere so general, the vegetation so predominant, as in the two Americas. Behold, under the same parallel, where Africa presents only parched table-lands, those boundless virgin forests of the basin of the Amazon, those selvas, almost unbroken, over a length of more than fifteen hundred miles, forming the most gigantic wilderness of this kind that exists in any continent.

4. And what vigor, what luxuriance of vegetation! The palm-trees, with their slender forms, calling to mind that of America itself, boldly uplift their heads one hundred and fifty or two hundred feet above the ground, and domineer over all the other trees of these wilds by their height, by their number, and by the majesty of their foliage. Innumerable shrubs and trees of smaller height fill up the space that separates their trunks; climbing plants, woody-stemmed, twining llanos, infinitely varied, surround them both with their flexible branches, display their own flowers upon the foliage, and combine them in a solid mass of vegetation impenetrable to man, which the axe alone can break through with success. On the bosom of their peaceful waters swims the Victoria, the elegant rival of the Rafflesia, that odorous and gigantic water-lily, whose white and rosy corolla, fifteen inches in diameter, rises with dazzling brilliancy from the midst of a train of immense leaves softly spread upon the waves, a single one covering a space of six feet in width. The rivers rolling their tranquil waters under verdurous domes in the bosom of these boundless wilds are the only paths Nature has opened to the scattered inhabitants of these rich solitudes.

5. Elsewhere, in Mexico and Yucatan, an invading vege-

tation permits not even the works of man to endure; and the monuments of a civilization comparatively ancient, which the antiquary goes to investigate with care, are soon changed into a mountain of verdure or demolished, stone after stone, by the plants piercing into their chinks, vigorously pushing aside and breaking with irresistible force all the obstacles that oppose their rapid growth.

6. South America, and particularly the basin of the Amazon, is the true kingdom of the palm-tree; nowhere does this noble form of vegetation show itself under a greater number of species. This is a sign of the preponderating development of leaves over every other part of vegetable growth; of that expansion of foliage, of that leafiness peculiar to warm and moist climates. Everywhere, long and abundant leaves, an intense verdure, a strong and well-nurtured vegetation—these are what we find in tropical America.

7. In the Old World the vegetation is less universal, less plentiful, than in the two Americas. Nowhere on its surface do we encounter virgin forests whose extent can be compared with the boundless selvas of the Amazon; they are found, doubtless, in the tropical regions of Africa and the Indies, but they are rather local phenomena, and do not give their character to vast countries. On the other hand, the Old World is the world of steppes and deserts. Nowhere else are those dry and barren plains so numerous, so extensive, so unbroken. It is enough to mention the boundless steppes of Russia and the Caucasus, of Siberia, and the Altai of Tartary and of Turkistan, to recall to mind the great zone of deserts obliquely traversing the Old World in its greatest length, from the shores of the Atlantic, through Sahara, Arabia, Eastern Persia, and Mongolia, to the Pacific Ocean, and occupying all the central part of the lands of three continents united, to be convinced that the distinctive character of the climate of the Old World is dryness.

8. The general forms and aspect of the plants themselves at once declare the parsimony wherewith Nature has provided for them the moisture so essential to their full development. Instead of expanding their surface for evaporation and absorption, their leaves seem to fold upon themselves, to concentrate themselves into a smaller volume; they have a tendency to approach the linear shape, the pointed form we notice in the pines; they often become membranous, leathery; or the plant is covered with a soft down, with a nap, or even with prickles, which are only leaves or branchlets transformed and hardened under the influence of a dry air.

9. Or, still further, they take those plump, fleshy, cylindrical forms, which seem struggling to contain the greatest quantity of vegetable matter in the smallest possible volume. Such is the flora of Southern Africa, with its stapelias, its juicy mesembryanthems, its brilliant aloes, its delicate mimosas, its metrosideri, its heaths without number. Such is that of Australia, with its forests of eucalypti, its banksias, and its casuarinas, with their long and naked, pendent, thread-like branches. Such, moreover, is the flora of the steppes and the deserts of Arabia and Gobi, consisting entirely of plants of a dry and ligneous nature, often clothed with white down, or of gray hues, imitating the color of the dust of the desert. In all these countries the forests are rare, of small extent, of little density; the scattered trees are not invaded by those woody climbers which elsewhere entangle and interweave them, and form those impenetrable masses of verdure which characterize the tropical wilds of the New World. Thus, in the vegetable kingdom of the Old World there is oftener a scarcity, oftener a sufficiency, but rarely an abundance.

10. Nevertheless, because the vegetable does not reign there by its mass, is this saying that it reaches a less perfect organization? It is this dry and warm climate that

produces the delicate fruits of Persia and of Asia Minor, elaborates those refined juices, those perfumes, those fine aromas of the East, the fame of which was already established in the remotest antiquity. These same regions of the Old World have given us coffee from Arabia and tea from the uttermost Orient, so precious to all civilized nations. The East Indies and their archipelago, as we have said, under the influence of the vigor of the continent and the moisture of the ocean, yield those concentrated products, those strong spices, the nutmeg, the clove, the ginger, there in its native country; the pepper, the cinnamon, of which the whole world makes use. It is these same countries that present us the largest leaves and flowers known; there, also, grows the banyan-tree, the symbol of vegetable strength; it is in Africa that the huge baobab unfolds itself—the adansonia, whose trunk sometimes measures twenty-five feet in diameter. But these are the products of favored spots, the general rule of the Old World being economy, not superfluity.

Arnold Guyot.

CLIMATE OF EUROPE AND AMERICA.

1. ENGLAND has a damp climate, and the sun shines less there than in most other countries. But to persons of full habit this moisture in the air is extremely agreeable; and the high condition of all animals in England, from man downward, proves its healthfulness. A stranger, who has been accustomed to a brighter sky, will at first find a gloom in the gray light so characteristic of an English atmosphere; but this soon wears off, and he finds a compensation, as far as the eye is concerned, in the exquisite softness of the verdure, and the deep and enduring brightness of the foli-

age. The effect of this moisture on the skin is singularly grateful. The pores become accustomed to a healthy action, which is unknown in other countries; and the bloom by which an English complexion is known all over the world is the index of an activity in this important part of the system which, when first experienced, is almost like a new sensation.

2. The climate of America is, in many points, very different from that of France and Great Britain. In the Middle and Northern States it is a dry, invigorating, bracing climate, in which a strong man may do more work than in almost any other, and which makes continual exercise, or occupation of some sort, absolutely necessary.

3. With the exception of the "Indian summer," and here and there a day scattered through the spring and the hot months, there is no weather tempered so finely that one would think of passing the day in merely enjoying it, and life is passed, by those who have the misfortune to be idle, in continual and active dread of the elements.

4. The cold is so acrid, and the heat so sultry, and the changes from one to the other so sudden and violent, that no enjoyment can be depended upon out-of-doors, and no system of clothing or protection is good for a day together. He who has full occupation for head and hand may live as long in America as in any portion of the globe. He whose spirits lean upon the temperature of the wind, or whose nerves require a genial and constant atmosphere, may find more favorable climes; and the habits and delicate constitutions of scholars and people of sedentary pursuits generally in the United States prove the truth of the observation.

5. The habit of regular exercise in the open air, which is found to be so salutary in England, is scarcely possible in America. It is said, and said truly, of the first, that there is no day in the year when a lady may not ride comfortably

on horseback; but with us the extremes of heat and cold, and the tempestuous character of our snows and rains, totally forbid, to a delicate person, anything like regularity in exercise. The consequence is, that the habit rarely exists, and the high and glowing health so common in England, and consequent, no doubt, upon the equable character of the climate in some measure, is with us sufficiently rare to excite remark. "Very English-looking" is a common phrase, and means very healthy-looking. Still our people *last*, and, though I should define the English climate as the one in which the human frame is in the highest condition, I should say of America that it is the one in which you could get the most work out of it.

6. Atmosphere, in England and America, is the first of the *necessaries* of life. In Italy, it is the first of the *luxuries*. We breathe in America and walk abroad without thinking of these common acts but as a means of arriving at happiness. In Italy, to breathe and to walk abroad are themselves happiness. Day after day, week after week, month after month, you wake with the breath of flowers coming in at your open window, and a sky of serene and unfathomable blue, the mornings and evenings of tranquil, assured, heavenly purity and beauty. No one can have lived in Italy a year who remembers anything but the sapphire sky, and the kindling and ever-seen stars. You grow insensibly to associate the sunshine and moonlight only with the fountain you have lived near, or the columns of the temple you have seen from your window, for on no objects in other lands have you seen their light so constant.

7. I scarce know how to convey, in language, the effect of the climate of Italy on mind and body. Sitting here, indeed, in the latitude of 39°, in the middle of April, by a warm fire, and with a cold wind whistling at the window, it is difficult to recall it even to the fancy. I do not

know whether life is prolonged, but it is infinitely enriched and brightened by the delicious atmosphere of Italy. You rise in the morning, thanking Heaven for life and liberty to go abroad. There is a sort of opiate in the air, which makes idleness, that would be the vulture of Prometheus in America, the dove of promise in Italy.

8. It is delicious to do nothing, delicious to stand an hour looking at a Savoyard and his monkey, delicious to sit away the long, silent noon, in the shade of a column, or on the grass of a fountain, delicious to be with a friend without the interchange of an idea, to dabble in a book, or look into the cup of a flower. You do not read, for you wish to enjoy the weather. You do not visit, for you hate to enter a door while the weather is so fine. You lie down unwillingly for your siesta in the hot noon, for you fear you may oversleep the first coolness of the long shadows of sunset. The fancy, meantime, is free, and seems liberated by the same languor that enervates the severer faculties; and nothing seems fed by the air but thoughts which minister to enjoyment.

9. The climate of Greece is very much like that of Italy. The Mediterranean is all beloved of the sun. Life has a value there, of which the rheumatic, shivering, snow-breasting idler of northern regions has no shadow even in a dream.

N. P. Willis.

VEGETATION AT PANAMA.

1. Here is the richest, densest vegetation in the world, an impenetrable tangle of mangoes, plantains, palms, oranges, bananas, limes, India-rubber trees, and thousands of shrubs and parasites new to Northern eyes. Here is primeval architecture, endless cloisters, colonnades, and bowers.

Little vistas of greensward, fragments of water; hills and basaltic cliffs are exceptional. As a whole, the isthmus is a vast jungle of trees, canebrakes, and parasites, gay with gorgeous flowers and birds of brilliant plumage, rich with the cocoa-nut, and sometimes dazzling with the brightness of the oranges.

2. Monkeys and parrots chatter on the branches; wild beasts hide in the dingles; insects swarm in the swamps; huge reptiles drag their slow lengths along the oozy soil, darkened by thick foliage which shuts out the light of the rich tropical heavens. From branches sixty feet high vines hang down like ropes, mingling on the earth in mazes and labyrinths, and climbing and winding up the huge trunks. The only fact of nature and figure of rhetoric, the sustaining oak and clinging vine, is reversed. The tree, indeed, supports the vine, but is smothered in the embrace of death. The trunks of some forest kings resemble huge pipes of lead, and even the stems of willows are in sections, with joints like corn-stalks and sugar-cane.

3. Here are the rarest combinations of color and form, wild palms with leaves eighteen inches long yet only a finger's width; immense groves of cultivated palms heavy with fruit, countless bananas upon which the natives subsist, pulpy stalks with leaves the thickness and texture of lily-pads, but sword-shaped, and ten or twelve feet in height; birds of white, black, and yellow; flowers of white, orange, crimson, and scarlet, blazing out from the convolutions and tangles of greenness. All is profusion, luxury, gorgeousness. "Every prospect pleases, and only man is vile."

A. D. Richardson.

PART VII.

MOUNTAIN ROADS AND PASSES.

THE RIVIERA ROAD.

1. This road is built along the shore of the Mediterranean from Nice to Genoa. The Romans had a road along this mountain-bound shore. It bore the imperial name of the Aurelian Way; but it was a narrow pass, often overhanging the sea, so narrow as hardly to admit the passage of a single horse. Now, by the energy of the French Government, which began and finished about three fifths of the enlarged road, followed by the persevering efforts of the Sardinian Government, a broad and excellent carriage-way has been completed in regions where, if we look to the right or left, below or above, it seems impossible much of the way to find a foothold. The Maritime Alps rise to the height of several thousand feet, and descend often in nearly vertical precipices. In the sides of these mountains the road is excavated by blasting the solid rocks.

2. A mountain impends above your head, ragged, projecting, and menacing; perhaps from a thousand or two feet below, the Mediterranean, in solemn grandeur, dashes its ever-restless waves against the base of the cliffs. Often a wall is built up from below, either solid or sustained on arches to support the road; and you travel within a few feet or yards of a tremendous precipice, beyond the edge of which there is nothing between you and death. In general

there is a parapet, but not always; and sometimes road materials or rubbish form an imperfect barrier. There is, however, no danger; and the traveler proceeds with full confidence, and is quite at ease to enjoy the magnificent scenery. I feel that it is impossible to convey in language any adequate idea of this conjunction of lofty and dreary mountains with the sea.

3. The mountains rise in terrific grandeur, dark, wild, barren, ragged, and impending, in beetling cliffs, indented with yawning chasms and deep gorges. You are suspended in mid-air between heaven and earth and ocean, and are equally impressed with the sublimity of nature and the power and daring of man.

4. As we advanced we were much impressed by the skillful husbandry exhibited among these rude, barren mountains. They were extensively terraced—the terraces being supported by stone walls—at distances of two or three yards apart. Wherever a spadeful of earth could be found it was carefully preserved and cultivated; and irrigation was most faithfully performed. To that end, at frequent intervals, little stone basins for water are established, into which the mountain streams are conducted.

Benjamin Silliman.

THE FIGHT OF PASO DEL MAR.

1. Gusty and raw was the morning,
A fog hung over the seas,
And its gray skirts, rolling inland,
Were torn by the mountain trees;
No sound was heard but the dashing
Of waves on the sandy bar,
When Pablo of San Diego
Rode down to the Paso del Mar.

2. The pescador out in his shallop,
Gathering his harvest so wide,
Sees the dim bulk of the headland
Loom over the waste of the tide;
He sees, like a white thread, the pathway
Wind round on the terrible wall,
Where the faint, moving speck of the rider
Seems hovering close to its fall.

3. Stout Pablo of San Diego
Rode down from the hills behind;
With the bells on his gray mule tinkling,
He sang through the fog and wind;
Under his thick, misted eyebrows
Twinkled his eye like a star,
And fiercer he sang as the sea-winds
Drove cold on the Paso del Mar.

4. Now Bernal, the herdsman of Chino,
Had traveled the shore since dawn,
Leaving the ranches behind him—
Good reason had he to be gone!
The blood was still red on his dagger,
The fury was hot in his brain,
And the chill driving scud of the breakers
Beat thick on his forehead in vain.

5. With his poncho wrapped gloomily round him,
He mounted the dizzying road,
And the chasms and steeps of the headland
Were slippery and wet as he trod:
Wild swept the wind of the ocean,
Rolling the fog from afar,
When near him came tinkling a mule-bell
Midway on Paso del Mar.

6. "Back!" shouted Bernal, full fiercely,
And "Back!" shouted Pablo, in wrath,
As his mule halted, startled and shrinking,
On the perilous line of the path.
The roar of devouring surges
Came up from the breakers' hoarse war,
And, "Back, or you perish!" cried Bernal,
"I turn not on Paso del Mar!"

7. The gray mule stood firm as the headland,
He clutched at the jingling rein,
When Pablo rose up in his saddle
And smote till he dropped it again.
A wild oath of passion swore Bernal,
And brandished his dagger still red,
While fiercely stout Pablo leaned forward,
And fought o'er his trusty mule's head.

8. They fought till the black wall below them
Shone red through the misty blast;
Stout Pablo then struck, leaning farther,
The broad breast of Bernal at last.
And, frenzied with pain, the swart herdsman
Closed on him with terrible strength,
And jerked him, in spite of his struggles,
Down from the saddle at length.

9. They grappled with desperate madness
On the slippery edge of the wall;
They swayed on the brink, and together
Reeled out to the rush of the fall.
A cry of the wildest death-anguish
Rang faint through the mist afar,
And the riderless mule went homeward
From the fight of Paso del Mar.

Bayard Taylor.

PASSAGE OF ST. BERNARD BY NAPOLEON.

1. On the eastern frontiers of France there surge up, from luxuriant meadows and vine-clad fields and hill-sides, the majestic ranges of the Alps, piercing the clouds, and soaring with glittering pinnacles into the region of perpetual snow and ice. Vast spurs of the mountains extend on each side, opening gloomy gorges and frightful defiles, through which foaming torrents rush impetuously, walled in by almost precipitous cliffs, whose summits, crowned with melancholy firs, are inaccessible to the foot of man.

2. The principal pass over this enormous ridge was that of the Great St. Bernard. The traveler, accompanied by a guide, and mounted on a mule, slowly and painfully ascended a steep and rugged path, now crossing a narrow bridge, spanning a fathomless abyss, again creeping along the edge of a precipice where the eagle soared and screamed over the fir-tops in the abyss below, and where a perpendicular wall rose to giddy heights in the clouds above. The path at times was so narrow that it seemed that the mountain goat could with difficulty find a foothold for its slender hoof. A false step, or a slip upon the icy rocks, would precipitate the traveler, a mangled corpse, a thousand feet upon the fragments of granite in the gulf beneath. As higher and higher he climbed these wild and rugged and cloud-enveloped paths, borne by the unerring instinct of the faithful mule, his steps were often arrested by the roar of the avalanche, and he gazed appalled upon its resistless rush, as rocks and trees and earth and snow and ice swept by him with awful and resistless desolation far down into the dimly-discerned torrents at his feet.

3. At God's bidding the avalanche fell. No precaution

could save the traveler who was in its path. He was instantly borne to destruction, and buried where no voice but the archangel's trump could ever reach his ear. Terrific

Hospice of the Great St. Bernard.

storms of wind and snow often swept through these bleak altitudes, blinding and smothering the traveler. Hundreds of bodies, like pillars of ice, embalmed in snow, are now

sepulchred in those drifts, there to sleep till the fires of the last conflagration shall have consumed their winding-sheet. Having toiled two days through such scenes of desolation and peril, the adventurous traveler stands upon the summit of the pass, eight thousand feet above the level of the sea.

4. The scene here presented is inexpressibly gloomy and appalling. Nature in these wild regions assumes her most severe and somber aspect. As one emerges from the precipitous and craggy ascent upon this Valley of Desolation, as it is emphatically called, the Convent of St. Bernard presents itself to the view.

5. This cheerless abode, the highest spot of inhabited ground in Europe, has been tenanted, for more than a thousand years, by a succession of joyless and self-denying monks, who, in that retreat of granite and ice, endeavor to serve their Maker by rescuing bewildered travelers from the destruction with which they are ever threatened to be overwhelmed by the storms which battle against them. In the middle of the ice-bound valley lies a lake—clear, dark, and cold—whose depths, even in midsummer, reflect the eternal glaciers which soar sublimely around.

6. The descent to the plains of Italy is even more precipitous and dangerous than the ascent from the green pastures of France. No vegetation adorns these dismal and storm-swept cliffs of granite and ice. The pinion of the eagle fails in its rarefied air, and the chamois ventures not to climb its steep and slippery crags. No human beings are ever to be seen on these bleak summits, except the few shivering travelers who tarry for an hour to receive the hospitality of the convent, and the hooded monks, wrapped in thick and coarse garments, with their staves and their dogs, groping through the storms of sleet and snow. Even the wood, which burns with frugal faintness on their

hearths, is borne, in painful burdens, up the mountain-sides on the shoulders of the monks.

7. Such was the barrier which Napoleon intended to surmount that he might fall upon the rear of the Austrians, who were battering down the walls of Genoa, where Massena was besieged, and who were thundering, flushed with victory, at the very gates of Nice. Over this wild mountain pass, where the mule could with difficulty tread, and where no wheel had ever rolled, or by any possibility could roll, Napoleon contemplated transporting an army of sixty thousand men, with ponderous artillery and tons of cannon-balls, and baggage, and all the bulky munitions of war.

8. At a word, the whole majestic army was in motion. Like a meteor he swept over France. He arrived at the foot of the mountains. The troops and all the paraphernalia of war were on the spot at the designated hour. Napoleon immediately appointed a very careful inspection. Every foot-soldier and every horseman passed before his scrutinizing eye. If a shoe was ragged, or a jacket torn, or a musket injured, the defect was immediately repaired. His glowing words inspired the troops with the ardor which was burning in his own bosom.

9. Each man was required to carry, besides his arms, food for several days, and a large quantity of cartridges. As the sinuosities of the precipitous path could only be trod in single file, the heavy wheels were taken from the carriages, and each, slung upon a pole, was borne by two men. The task for the foot-soldiers was far less than for the horsemen. The latter clambered up on foot, dragging their horses after them. The dragoon, in the steep and narrow path, was compelled to walk before his horse. At the least stumble he was exposed to being plunged into the abyss yawning before him. In this way many horses and several riders perished.

10. To transport the heavy cannon and howitzers, pine

logs were split in the center, the parts hollowed out, and the guns sunk into the grooves. A long string of mules, in single file, were attached to the ponderous machines of war, to drag them up the slippery ascent. The mules soon began to fail, and then the men, with hearty good-will, brought their own shoulders into the harness—a hundred men to a single gun.

11. With shouts of encouragement they toiled at the cables, successive bands of a hundred men relieving each other every half hour. High on those craggy steeps, gleaming through the mist, the glittering bands of armed men like phantoms appeared. The eagle wheeled and screamed beneath their feet. The mountain goat, affrighted by the unwonted spectacle, bounded away, and paused in bold relief upon the cliff, to gaze upon the martial array which so suddenly had peopled the solitude.

12. When they approached any spot of very especial difficulty, the trumpets sounded the charge, which re-echoed, with sublime reverberations, from pinnacle to pinnacle of rock and ice. Animated by these bugle notes, the soldiers strained every nerve as if rushing upon a foe. Napoleon offered to these bands the same reward which he had promised the peasants. But to a man they refused the gold. They had imbibed the spirit of their chief, his enthusiasm, and his proud superiority to all mercenary purposes. "We are not toiling for gold," said they, "but for your approval, and to share your glory."

13. When they arrived at the summit, each soldier found, to his surprise and joy, the abundant comforts which Napoleon's kind care had provided. One would have anticipated there a scene of terrible confusion. To feed an army of forty thousand hungry men is not a light undertaking. Yet everything was so carefully arranged, and the influence of Napoleon so boundless, that not a soldier left the ranks. Each man received his slice of bread and

cheese and quaffed his cup of wine, and passed on. It was a point of honor for no one to stop. Whatever obstructions were in the way were to be, at all hazards, surmounted, that the long file, extending nearly twenty miles, might not be thrown into confusion. The descent was more perilous than the ascent. But fortune continued to smile. The sky was clear, the weather delightful, and in four days the whole army was reassembled on the plains of Italy.

John S. C. Abbott.

PART VIII.

ARCTIC REGIONS.

AN ESQUIMAUX HUT.

1. On the slope, fifty yards from the beach, in the midst of rocks and bowlders, stood the Esquimaux settlement, consisting of two stone huts, twenty yards apart. It was more fitted for the dwelling-place of wild animals than for the home of human beings. Around it was a wilderness of snow and ice. In the evening, while the men in our tent were asleep, I paid a visit to one of these huts ; I found it to be in shape much like an old-fashioned country clay oven, square in front, and sloping back into the hill. It was now covered with snow, and, until after entering, I could not discover of what material it was made. To get inside I was obliged to crawl on my hands and knees through a covered passage about twelve feet long. Kalutunah, upon hearing my footsteps, came out to welcome me, which he did by patting me on the back and grinning in my face. Preceding me with a smoking torch, which was a piece of burning moss saturated with fat, he advanced through the low, narrow passage, tramping over several snarling dogs and half-grown puppies.

2. After making two or three turns, I observed at last a bright light streaming down through a hole, into which my guide elevated his body ; and then, moving to one side, he

made room for his guest. I found myself in a den in which I could not stand upright, but which was crowded with human beings of both sexes, and of all ages and sizes. I was received with a hilarious shout, which assured me of welcome. Like a flock of sheep crowding into a pen, they packed themselves in the corners to make room for me on the only seat which I could discover. I had come to gratify my own curiosity, but theirs was even more rapacious than mine, and must be first satisfied. Everything I had on and about me underwent the closest examination.

Esquimaux Life.

3. My long beard greatly excited their interest and admiration. Being themselves without this hirsute appendage, or at most having only a few stiff hairs upon the upper lip and the point of the chin, I could readily appreciate their curiosity. They touched it and stroked it, patting me all the while on the back, and hanging on to my arms, legs, and shoulders. I was a very Peter Parley among a crowd of overgrown children. They were greatly puzzled

over my woolen clothing, and could not comprehend of what kind of skins it was made. The nearest that I could approach to a description was that it grew on an animal looking like an "Ukalek" (hare). That it was not skin I could not make them understand. Hans, being once importuned at the ship on the same subject, told some of them, rather pettishly, that it was a "man skin"; and this I found to be the general impression.

4. While satisfying their curiosity I found leisure to examine the hut. The whole interior was about ten feet in diameter, and five and a half feet high. The walls were made of stones, moss, and the bones of whale, narwhal, and other animals. They were not arched, but drawn in gradually from the foundation, and capped by long slabs of slate-stone, stretching from side to side. The floor was covered with thin, flat stones. Half of this floor, at the back part of the hut, was elevated a foot. This elevation was called "breck"; and it served both as bed and seat, being covered with dry grass, over which were spread bear- and dog-skins. At the corners in front were similar elevations, under one of which lay a litter of pups, with their mother, and under the other was stowed a joint of meat. The front of the hut was square, and through it, above the passage-way, opened a window; a square sheet of strips of dried intestine, sewed together, admitted the light.

5. The hole of the entrance in the floor was close to the front wall, and was covered with a piece of seal-skin. The walls were lined with seal- or fox-skins, stretched to dry. In the cracks between the stones were thrust whipstocks and bone pegs, on which hung coils of harpoon-lines. On one side of me, at the edge of the "breck," sat an old woman, and on the other side a young one, each busily engaged in attending to a smoky, greasy lamp. A third woman sat in a corner, similarly occupied. The lamps were made of soap-stone, and in shape much resembled a

clam-shell, being about eight inches in diameter. The cavity was filled with oil, and on the straight edge a flame was burning quite brilliantly. The wick which supplied fuel to the flame was of moss. The only business of the women seemed to be to prevent the lamps from smoking, and to keep them supplied with blubber, large pieces of which were placed in them, the heat of the flame trying out the oil.

6. About three inches above this flame hung, suspended from the ceiling, an oblong square pot of the same material as the lamp, in which something was slowly simmering. Over this was suspended a rack made of bear rib-bones lashed together crosswise, on which were placed to dry stockings, mittens, pantaloons, and other articles of clothing. The inmates had no other fire than was supplied by the lamps, nor did they need any. The hut was absolutely hot. So many persons crowded into so small a space would of themselves keep the place warm. I counted eighteen, and may, very probably, have missed two or three small ones. Centering each around its own particular lamp and pot were three families, one of which was represented by three generations. These three families numbered, in all, thirteen individuals; but besides these there were some visitors from the other hut.

7. The air of the place was insufferable, except for a short time. The half-decomposed scraps of fur, fat, and flesh, which lay on the floor and "breck," or were heaped in the corners; the poisonous multiplicity of breathing lungs; the steam which rose from the heated bodies of the inmates; and the smoke of the lamps—altogether created an atmosphere which was almost stifling. There may have been a vent-hole, but I did not see any. I perspired as if in the tropics. Perceiving this, the company invited me to imitate them, and instantly half a dozen boys and girls seized my coat and boots, preparatory to stripping me. But I

had brought from home certain conventional notions, and I declined the intended courtesy, telling them that I must go back to my people.

8. First, however, I must have something to eat. This was an invitation which I feared; and now that it had come, I knew that it would be unwise to decline it. The expression of thanks (koyenak) was one of the few in their language that I knew, and of this I made the most. They laughed heartily when I said "Koyenak" in reply to their invitation to eat; and immediately a not very beautiful young damsel poured some of the contents of one of the before-mentioned pots into a skin dish, and after sipping it, to make sure, as I supposed, that it was not too hot, she passed it to me over a group of heads. At first my courage forsook me; but all eyes were fixed upon me, and it would have been highly impolitic to shrink. I therefore shut my eyes, held my nose, swallowed the dose, and retired. I was afterward told that it was their great delicacy which had been proffered to me—a soup made by boiling together blood, oil, and seal-intestines. It was well that I was ignorant of this fact.

Dr. Isaac I. Hayes.

THE AURORA BOREALIS.

1. It was the last day of the year 1856, and we were traveling near the head of the Gulf of Bothnia, within a short distance of the Arctic Circle. The long winter nights had set in, and it was still twelve miles to the end of our day's journey. I was lying stretched out in the long baggage shed, in a sort of half sleep, when an exclamation from my companion awakened me. I opened my eyes as I lay in his lap, looked upward, and saw a narrow belt or scarf of silver fire stretching directly across the zenith, with its

loose, frayed ends slowly swaying to and fro down the slopes of the sky.

2. Presently it began to waver, bending back and forth, sometimes slowly, sometimes with a quick, springing motion, as if testing its elasticity. Now it took the shape of a bow, now undulated into Hogarth's line of beauty, brightening and fading in its sinuous motion, and finally formed a shepherd's crook, the end of which suddenly began to separate and fall off, as if driven by a strong wind, until the whole belt shot away in long, drifting lines of fiery snow. It then gathered again into a dozen dancing fragments, which alternately advanced and retreated, shot hither and thither, against and across each other, blazed out in yellow and rosy gleams, or paled again, playing a thousand fantastic tricks, as if guided by some wild whim.

3. We lay silent, with upturned faces, watching this wonderful spectacle. Suddenly the scattered lights ran together, as by a common impulse, joined their bright ends and fell in a broad, luminous curtain, straight downward through the air, until its fringed hem swung apparently but a few yards over our heads. This phenomenon was so unexpected and startling that for a moment I thought our faces would be touched by the skirts of the glorious auroral drapery.

4. It did not follow the spheric curve of the firmament, but hung plumb from the zenith, falling, apparently, millions of leagues through the air, its folds gathered together among the stars, and its embroidery of flame sweeping the earth and shedding a pale, unearthly radiance over the wastes of snow. A moment afterward it was again drawn up, parted, waved its flambeaux, and shot its lances hither and thither, advancing and retreating as before. Anything so strange, so capricious, so wonderful, so gloriously beautiful, I scarcely hope to see again.

5. Two weeks later, while traveling in Norwegian Lap-

land, we were favored with another display of a similar character. The night was calm, clear, and starry, but after an hour a bank of auroral light gradually arose in the north and formed a broad arch, which threw its luster over the snow and lighted up our path. Almost stationary at first, a restless motion after a time agitated the gleaming bow; it shot out broad streamers of yellow fire, gathered them in and launched them forth again, like the hammer of Thor, which always returned to his hand after striking the blow for which it had been hurled.

6. The most wonderful appearance, however, was an immense square curtain, which fell from all the central part of the arch. The celestial scene-shifters were rather clumsy, for they allowed one end to fall lower than the other, so that it overlapped and doubled back upon itself in a broad fold. Here it hung for probably half an hour, swinging to and fro, as if moved by a gentle wind. What new spectacle was in secret preparation behind it we did not learn, for it was hauled up so bunglingly that the whole arch broke and fell in, leaving merely a pile of luminous ruins under the polar star.

Bayard Taylor.

ARCTIC ICE.

1. THERE is something more than danger to be noticed about these frozen regions. The moment the navigator leaves the open sea and enters the ice, his old seamanship goes for nothing. A new art is required to work his vessel in these half-solid seas. Clumsy, heavy, but tight and snug little craft these vessels are. The shocks they encounter from the drifting ice, and the nips and blows they receive on all hands, would crunch up any ordinary vessel like a walnut in the gripe of the nut-cracker. Far on

every side stretch floating islands of ice, now separating so as to leave a broad alluring channel for the vessel, then closing with a rapidity which seems to cut off all hope of escape. The treacherous quickness of their approach, and their magically sudden changes, are the marvel and terror of mariners.

2. The most open sea yields no security. Many a vessel has been caught and sunk before those near her dreamed of her danger. These floes are fragments broken by thaw and currents from the vast surfaces called fields, and are themselves often of enormous size. Parry saw one half a mile in diameter. We can understand with what horror the seaman beholds such a mass floating toward him, as he lies off the shore of some rocky promontory. Parry describes the terrific crash of one of these floes against a precipice, and the piles of broken ice splintered from it in the shock.

3. If the ice is thick, and the shore shelving, ships may be brought so near the land that the floe strands before reaching them. And so heavy is the ice in these regions that the mariner often owes his safety to this expedient. Dr. Kane found a piece standing nine feet above water, and, since there is six times as much below as above, the total thickness must have been sixty-three feet. This thickness is not the result of direct freezing. When the young ice is formed, the snow often weighs it down and cracks it. The sea-water, issuing through, makes a snow sludge, which the winter freezes into solid ice.

4. Fields of ice are the loose fragments and floes welded together by the freezing of the water between, and further incrusted with fresh layers of saturated snow, which is gradually converted into ice by the cold of the winter. No wonder, then, that this ice is far from smooth, and is found intersected by vast hammocks, or raised mounds, crossing the surface in all directions. It is scarcely necessary to point out to the reader how materially this must interfere

with the sledging, which we ordinarily deem so easy and delightful a mode of traveling.

5. The ice-fields thus formed, however, though the largest, are not the most striking feature of the Arctic seas. The most remarkable objects are those floating mountains of ice which tower majestically from the surrounding waters, and are known under the familiar name of icebergs. Sometimes seventy or a hundred of these wonderful masses may be seen at a time.

Ice-fields in the Arctic Regions.

6. The imagination might weary itself with running riot amid the fantastic forms and beauties they present. Temples of ice, with sculptured aisles and fretted columns, and solemn archways, grouped together in glorious sym-

metry, or thrown in hideous confusion and ruin by the shock of some terrible earthquake; cities of ice, with spire and dome and minaret, all gleaming in the sunset's blaze; fairy halls of ice, spangled with jewels of every hue, and flashing in the noontide with the splendor of myriad rainbows; mountains of ice, pale, cold, and spectral, with that awful light which distinguishes the snow-clad summits of the Alps amid the gathering shadows of the evening.

7. Their size is enormous; one of them, seen by Captain Fenton, of the Judith, who accompanied Sir Martin Frobisher's third expedition, stood sixty-five fathoms above the water. The deep blue of the base, rising from the surf like a precipice of solid sapphire, and the dazzling whiteness of their crown of snow, render them among the most strikingly beautiful objects of these regions. They are at once the most terrible foes and the most steadfast friends of the mariner.

8. When the storm-swell rolls in from the Atlantic, when the blocks of ice pitch and roll among the waves, grinding and crashing with a fearful noise, and hurrying the vessel onward in their course, these pitiless ice precipices, against which the waves are breaking in huge mountains of spray, may well be looked upon with feelings of terror. So, too, when they are seen bearing down with their resistless strength toward the field on the side of which the mariner is floating, he may well regard them as the most dreadful of foes.

9. But how often, snugly moored under their lee, has he beheld the pack, through which his feeble craft had for days been vainly struggling, torn in pieces like a sheet of paper, and sail proudly on, with a track of seething, eddying water, cleared of every fragment of ice for half a mile in his train! It is almost always as the good genii of the navigators that these ice mountains appear—capricious, indeed, as all genii are; often threatening, but seldom or never

doing any harm ; and sometimes rendering the most essential services.

10. We have read, indeed, of one doting old berg—so far gone that it can scarcely be considered responsible—which very nearly played the part of a most malignant genius to Dr. Kane. This unfortunate explorer had just moored under its sheltering wall, when it suddenly began to tremble like a paralytic man, and to shed down fragments of ice upon his bark. The doctor thought it was time to be off, and had scarcely loosed his hawsers, and got clear of the berg, when a terrific crack shook through its whole frame, and in another instant the vast mass plunged, an avalanche of ruins, into the sea.

11. As a kind of set-off, however, against this story, we must tell of a more genial berg to which the doctor once applied for help. While sailing up Smith's Sound, with tightly-packed ice on his left, and an army of bergs on his right, all of a sudden the wind failed—a very common and annoying circumstance in these regions. At the same time he saw the bergs in motion, bearing down for the field of ice on his left. He could not move an inch, and destruction seemed inevitable, when, to his delight, he perceived a friendly berg rapidly plowing its way up the channel. An ice-anchor was happily attached, and a stout hawser (how they must have looked to the hawser !) was soon at full stretch towing them along. It was a race for life, but the vessel won it, having cleared the channel by about five yards, when the threatening berg came with a fearful crash in contact with the field.

12. But what are these bergs, and where do they come from ? We often read of bergs which turn out to be only lumps of floe ice frozen to a remarkable thickness, and standing high above the waves. These, however, are wrongly named. Real bergs are fragments of glaciers, which exist in Greenland, as in the Alps and Norway, fed

by great fields of snow, and forming the rivers of this frozen land. Ice has been shown to be a thick, tenacious liquid, possessed of considerable plasticity, and pouring down an incline by its own gravity, and the internal movement of its own particles. These ice rivers may be seen winding along the valleys, oozing over the precipices, and finally standing like a frozen cataract on the very margin of the waves.

13. Another question arises: How is all this ice ever to melt? The vast sea of unmelted ice we have before spoken of shows that if left to itself it never would. Wherever a sheltered bay prevents escape of the ice into the main drifts outside, it remains thick and solid through the whole short summer of these northern climes. But in the broader channels the thawing of the thinner portions sets the ice in motion within itself. Fragments are broken off, and the small pieces that are thus thrown over the surface of the ocean readily yield to the rays of an almost perpetual sun. A larger space is thus left for the movements of the floes, which are many of them drifted with the southern current down Baffin's Bay, and finally melted in the warmer waters of the Atlantic.

Eclectic Review.

PART IX.

TROPICAL REGIONS.

TROPICAL INSECTS.

1. Persons who have not navigated the great rivers of equinoctial America can scarcely conceive how, at every instant, without intermission, you may be tormented by insects flying in the air; and how the multitude of these little animals may render vast regions almost uninhabitable. Whatever fortitude may be exercised to endure pain without complaint, whatever interest may be felt in the objects of scientific research, it is impossible not to be constantly disturbed by the mosquitoes, zancudos, jejens, and tempraneros, that cover the face and hands, pierce the clothes with their long needle-formed suckers, and, getting into the mouth and nostrils, occasion coughing and sneezing whenever any attempt is made to speak in the open air.

2. In the missions of the Orinoco, in the villages on the banks of the river, surrounded by immense forests, the plague of the mosquitoes affords an inexhaustible subject of conversation. When two persons meet in the morning, the first questions they address to each other are: "How did you find the zancudos during the night? How are we to-day for the mosquitoes?" These questions remind us of a Chinese form of politeness, which indicates the ancient state of the country where it took birth. Salu-

tations were made heretofore in the celestial empire in the following words: Vou-to-hou, "Have you been incommoded in the night by the serpents?"

3. Near the mouth of the Orinoco, the lower strata of air, from the surface of the ground to the height of fifteen or twenty feet, are absolutely filled with venomous insects. If in an obscure spot—for instance, in the grottos of the cataracts formed by superincumbent blocks of granite—you direct your eyes toward the opening enlightened by the sun, you see clouds of mosquitoes more or less thick. I doubt whether there be a country upon earth where man is exposed to more cruel torments in the rainy season. Having passed the fifth degree of latitude, you are somewhat less stung; but on the upper Orinoco the stings are more painful, because the heat and the absolute want of wind render the air more burning and more irritating in its contact with the skin.

4. What appeared to us very remarkable is, that the different species do not associate together, and that at different hours of the day you are stung by distinct species. Every time that the scene changes, and, to use the simple expression of the missionaries, other insects "mount guard," you have a few minutes, often a quarter of an hour, of repose. The insects that disappear have not their places instantly supplied by their successors. From half past six in the morning till five in the afternoon the air is filled with mosquitoes, which have not, as some travelers have stated, the form of our gnats, but that of a small fly. Their sting is painful, and it leaves a little reddish-brown spot, which is extravasated and coagulated blood, where their proboscis has pierced the skin. An hour before sunset a species of small gnats, called tempraneros, because they appear also at sunrise, take the place of the mosquitoes. Their presence scarcely lasts an hour and a half; they disappear between six and seven in the evening, or, as they say here, after the

Angelus. After a few minutes' repose, you feel yourself stung by zancudos, another species of gnat with very long legs. The zancudo, the proboscis of which contains a sharp-pointed sucker, causes the most acute pain, and a swelling that remains several weeks.

5. The insects of the tropics everywhere follow a certain standard in the periods at which they alternately arrive and disappear. At fixed and invariable hours, in the same season, and the same latitude, the air is peopled with new inhabitants, and in a zone where the barometer becomes a clock, where everything proceeds with such admirable regularity, we might guess blindfold the hour of the day or night by the hum of the insects, and by their stings, the pain of which differs according to the nature of the poison that each species deposits in the wound.

6. It is a curious fact that the whites born in the torrid zone may walk barefoot with impunity in the same apartment where a European recently landed is exposed to the attack of the chegoe. This animal, almost invisible to the eye, gets under the toe-nails, and there acquires the size of a small pea, by the quick increase of its eggs, which are placed in a bag under the belly of the insect. The chegoe, therefore, distinguishes what the most delicate chemical analysis could not distinguish—the cellular membrane and blood of a European from those of a creole white. The mosquitoes, on the contrary, attack equally the natives and the Europeans ; but the effects of the sting are different in the two races of men. The same venomous liquid, deposited in the skin of a copper-colored man of Indian race, and in that of a white man newly landed, causes no swelling in the former, while in the latter it produces hard blisters, greatly inflamed, and painful for several days, so different is the action on the epidermis, according to the degree of irritability of the organs in different races and different individuals !

7. The Indians, and in general all the people of color, at the moment of being stung, suffer like the whites, although, perhaps, with less intensity of pain. In the daytime, and even when laboring at the oar, the natives, in order to chase the insects, are continually giving one another smart slaps with the palm of the hand. They even strike themselves and their comrades mechanically during their sleep. The violence of their blows reminds one of the Persian tale of the bear that tried to kill with his paw the insects on the forehead of his sleeping master.

8. When you are exposed day and night, during whole months, to the torment of insects, the continual irritation of the skin causes febrile commotions; and, from the sympathy existing between the dermoid and the gastric systems, injures the functions of the stomach. Digestion first becomes difficult, the cutaneous inflammation excites profuse perspirations, an unquenchable thirst succeeds, and, in persons of a feeble constitution, increasing impatience is succeeded by depression of mind, during which all the pathogenic causes act with increased violence. It is neither the dangers of navigating in small boats, the savage Indians, nor the serpents, crocodiles, or jaguars, that make Spaniards dread a voyage on the Orinoco; it is the perspiration and the flies.

9. Whoever has lived long in countries infested by mosquitoes will be convinced, as we were, that there exists no remedy for the torment of these insects. The Indians, covered with annotto, bolar earth, or turtle-oil, are not protected from their attacks. Europeans, recently arrived at the Orinoco, at first obtain some relief by covering their faces and hands, but they soon feel it difficult to endure the heat, are weary of being condemned to complete inactivity, and finish with leaving the face and hands uncovered. Persons who would renounce all kind of occupation during the navigation of these rivers might bring some

particular garment from Europe in the form of a bag, under which they could remain covered, opening it only every half-hour. This bag should be distended by whalebone hoops, for a close mask and gloves would be perfectly insupportable.

10. We have just seen that winged insects, collected in society, and concealing in their sucker a liquid that irritates the skin, are capable of rendering vast countries uninhabitable. Other insects equally small, the termites, create obstacles to the progress of civilization, in several hot and temperate parts of the equinoctial zone, that are difficult to be surmounted. They devour paper, pasteboard, and parchment with frightful rapidity, utterly destroying records and libraries. Whole provinces of Spanish-America do not possess one written document that dates a hundred years back. What improvement can the civilization of nations acquire if nothing links the present with the past; if the depositaries of human knowledge must be repeatedly renewed; if the records of genius and reason can not be transmitted to posterity?

Humboldt.

THE BASHIKONAY OR ARMY ANT.

1. Du Chaillu, in his travels in Eastern Africa, encountered this ant, and gives a very vivid description of it.

2. It is the dread, not of man alone, but of every living thing from the elephant and leopard down to the smallest insect. A half inch is about the average length of one of these ants, though some of them are found of twice that length. Individually they are bold; the bulldog has not more pluck and tenacity of grip. But their great power

Return of Ants after a Battle (magnified).

lies in the immense armies into which they organize themselves, and the military order which they preserve. When

on the march they go in columns of two inches broad, but often miles in length.

3. Du Chaillu once saw a column formed in close order which occupied twelve hours, from sunrise to sunset, in passing the spot from which he watched them; and, as they march by night as well as by day, he did not know how long the column had been passing before he saw it. All along the line were larger ants, clearly officers, standing outside the column until their squads had passed, when they moved on and joined them. How many millions upon millions there were in this line it would be idle to attempt to estimate.

4. When, on the march, the column comes to a small stream, they fling across it a living bridge. Selecting a spot where the branch of a tree reaches nearly over to one on the other bank, only lower down, the second of the pontoniers, as we may fairly call them, with his fore claws grasps the hind claws of the one in front, and lowers him over; a third does the same by the second; and so on until this living chain is long enough to reach the desired point. Line after line is thus stretched until a bridge is formed wide enough for the whole army to pass over.

5. Imagine the strength of muscle which these creatures must possess to enable them to maintain their grasp for hours. The marching column throws itself into line of battle with wonderful precision. When it sweeps over the country, nothing living can stay its progress. Du Chaillu was once plodding through the forest in search of game. All at once he was startled by a strange sound. It was caused by the rush of wild beasts. He thought he caught a glimpse of a gorilla; he was sure he heard the footsteps of an elephant; and soon after a herd of elephants were rushing through the forest. Soon the air grew thick with insects.

6. While wondering what this might mean he felt the

torments of innumerable bites, and in an instant he found himself almost covered by ants. He had been fallen upon by the skirmishers of an army of Bashikonay. He set off at the sharpest run in the direction which the other fugitives had taken. Fortunately his speed was greater than that of the ants; and as soon as he thought himself safe he stripped off his clothing. It fairly swarmed with ants who had buried themselves in the garments, striking their pincers clear through into the flesh beneath. They never let go their grip until they have taken out the flesh. Pull at one, his body is separated from his head, and the jaws, if we may so call them, keep their hold. He had just resumed his garments when the Bashikonay came upon him, and he again took to flight, never stopping until he had crossed a stream and taken refuge in a swamp beyond.

7. These Bashikonay can not bear the heat of the sun; and hence are only found in regions covered by forests. If on the march they come to an open place, they dig a tunnel four or five feet under ground, through which they pass to the jungles on the opposite side.

8. When they enter a village the inhabitants run for their lives. In an incredibly short space every hut is cleared of vermin, and the only trace left of them is the bones of rats and mice, and the horny wing-cases of insects. Nothing that breathes comes amiss to them. An antelope which had been shot by Du Chaillu was picked to the bones in a few hours. The carcass of an elephant would be cleared away quite as quickly as by a kraal of natives. They sometimes come upon a huge snake lying torpid, perhaps, after the manner of his species, gorged with food. In that case it is all over with his serpentine majesty.

9. "I was always rejoiced," says Du Chaillu, who does not like snakes, "when they got hold of a serpent, though these are pretty shy, and manage generally to get out of

the way, except when they are in a state of torpor." But rats, mice, roaches, centipedes, scorpions, spiders, and such small pests are doomed. A swarm of ants will kill a rat in a minute or two, and devour him in almost as short a space. Upon the whole, they are a blessing to the human race in Africa, by keeping down the vermin which would otherwise render the country uninhabitable.

Du Chaillu.

PART X.

NATURAL CURIOSITIES.

THE NATURAL BRIDGE, VIRGINIA.

1. "Cousin, is the bridge near at hand?" Porte started up, apologizing for his forgetfulness, and intimated to the ladies that if they would walk with him a short distance they might have a distant glimpse of the bridge without delay. Starting from the tavern-door, they followed the public road by a gentle ascent for sixty or eighty paces, when they came to a gate. Here Crayon entered, and, taking Minnie by the arm, he pushed aside the branches of an arbor vitæ, and led her forward several paces until they reached a sort of rocky barrier.

2. "Look down, cousin!"

3. She shrieked, and would have fallen but for the support of her companion, who hastily withdrew her from the spot and seated her, all pale and trembling, under the shade of an evergreen.

4. "What's the matter? What is it?" inquired the others, with alarmed eagerness.

5. "O Porte, how could you do it! The bridge! the bridge! we're on the bridge! It was terrible!" On hearing this, Fanny and Dora looked wildly about, as if seeking some place of refuge, and finally fled through the gate by

which they had entered, and only halted when they had gained the middle of the highway.

6. "Come back, you silly creatures!"

7. "No, no, not for the world! we would not go on it again."

8. "Don't you know that you are on it now?"

9. Dora would have taken to her heels again, but Fanny stopped her. "Don't mind Porte's quizzing," said she. "Don't you see, we are in the public road, and not on any bridge?"

10. Porte succeeded in capturing the runaways, and, holding them securely before he gave the information, explained to them that they then stood over the center of the arch, and yet so entirely hidden was the chasm which it spanned, by the natural parapet of rocks and trees, that he had himself seen persons pass over without being aware of it. Then, by dint of fair promises, he induced his captors to return to the point of view.

11. "No tricks, brother; no surprises."

12. "'Pon honor, none; I was too much frightened at the result of my last to try another."

13. He then led the ladies, one at a time, to the parapet, where on their hands and knees they ventured to look over the brink into that awful chasm, which few have nerve sufficient to view from an upright position. Fanny attempted it, holding to her brother's arm, but found she could endure it only for a moment, when her dizzy brain and trembling knees warned her to desist.

14. It appearing that there still remained several hours of daylight, our friends determined to visit the bridge below, where they were assured they might enjoy the grandeur of the scene unmixed with terror.

15. Following their leader down a rapidly descending path which wound around the abrupt point of a hill, they presently entered a grove of noble evergreens, and on emerg-

ing all stood still with one accord. In front and below them was the yawning gorge, rugged and wild, clothed as it were in somber shadows, through which the light glanced from the cascades of Cedar Creek with faint and trembling sheen. Above, with its outline of tree and rock cutting sharp against the blue sky, rose the eternal arch, so massive yet so light it springs, uniting its tremendous buttresses high in mid-air, while beneath its stern shadow the eye can mark, in fair perspective, rocks, trees, hill-tops, and distant sailing clouds. There are few objects in nature which so entirely fill the soul as this bridge in its unique and simple grandeur. In consideration of its adaptation to circumstances, the simplicity of its design, the sublimity of its proportions, the spectator experiences a fullness of satisfaction which familiarity only serves to increase; and, while that sentiment of awe inseparable from the first impression may be weakened or disappear altogether, wonder and admiration grow with time.

16. Continuing their descent, our friends reached the banks of the stream and passed beneath the arch, pausing at every step to feast their eyes upon the varying aspects in which the scene was presented. Crossing Cedar Creek under the bridge, they gained a point above on the stream, whence the view is equally fine with that obtained from the descending path on the opposite side. The flanking row of embattled cliffs, their sides wreathed with dark foliage and their bases washed by the stream, forms a noble addition to the scene.

17. The average height of these cliffs is about two hundred and fifty feet, the height of the bridge about two hundred and twenty. The span of the arch is ninety-three feet, its average width eighty, and its thickness in the center fifty-five feet. It does not cross the chasm precisely at right angles, but in an oblique direction, like what engineers call a skew bridge. While the cliffs are perpendic-

ular and in some places overhanging, the abutments under the arch approach until their bases are not more than fifty feet apart. At ordinary times the stream does not occupy more than half this space; although, from its traces and water-marks, it frequently sweeps through in an unbroken volume, extending from rock to rock. The top of the bridge is covered with a clay soil to the depth of several feet, which nourishes a considerable growth of trees, generally of the evergreen species. These, with masses of rock, serve to form natural parapets along the sides, as if for greater security, and entirely obscure the view of the chasm from the passer.

18. Next day our friends revisited each point above and below the bridge with increased gratification, while Crayon employed himself in the attempt to portray its most striking features upon tinted paper. This, he avers, can not be accomplished by mortal hand; for, while he acknowledges he has seen several sketches that rendered the general outline and even minute details with great accuracy, he never saw one that conveyed, even in a remote degree, any of the majestic grandeur of the original. One of the most satisfactory views is obtained from a hill-side about half a mile below the bridge. From this point the perfection of the arch is more remarkable; and there is a fine view of the hill, which, a short distance to the right of its apex, is cleft to its base by this singular chasm.

General Strother.

THE MAMMOTH CAVE.

1. The Mammoth Cave is in the southwest part of Kentucky, about a hundred miles from Louisville, and sixty from Harrodsburg Springs. The word *cave* is ill calculated to impress the imagination with an idea of its sur-

passing grandeur. It is, in fact, a subterranean world, containing within itself territories extensive enough for half a dozen German principalities. It should be named Titan's Palace or Cyclops' Grotto. It lies among the Knobs, a range of hills, which border an extent of country, like highland prairies, called the Barrens. The surrounding scenery is lovely. Fine woods of oak, hickory, and chestnut, clear of underbrush, with smooth, verdant openings, like the parks of English noblemen.

2. As you come opposite the entrance of the cave in summer, the temperature changes instantaneously from about 85° to below 60°, and you feel chilled as if by the presence of an iceberg. In winter, the effect is reversed. The scientific have indulged in various speculations concerning the air of this cave. It is supposed to get completely filled with cold winds during the long blasts of winter, and, as there is no outlet, they remain pent up till the atmosphere without becomes warmer than that within, when there is, of course, a continual effort toward equilibrium. Why the air within the cave should be so fresh, pure, and equable, all the year round, even in its deepest recesses, is not easily explained.

3. The superabundance of oxygen in the atmosphere operates like moderate doses of exhilarating gas. The traveler feels a buoyant sensation, which tempts him to run and jump and leap from crag to crag, and bound over the stones in his path.

4. The wide entrance to the cavern soon contracts, so that but two can pass abreast. This path continues about fourteen or fifteen rods, and emerges into a wider avenue, which leads directly into the Rotunda, a vast hall comprising a surface of eight acres, arched with a dome a hundred feet high without a single pillar to support it. It rests on irregular ribs of dark gray rock, in massive oval wings, smaller and smaller, one seen within another, till they ter-

minate at the top. Perhaps this apartment impresses the traveler as much as any portion of the cave, because from it he receives his first idea of its gigantic proportions. The vastness, the gloom, the impossibility of taking in the boundaries by the light of lamps—all these produce a deep sensation of awe and wonder.

5. From the Rotunda, you pass into Audubon's Avenue, from eighty to a hundred feet high, with galleries of rock on each side, jutting out farther and farther, till they nearly meet at top. This avenue branches out into a vast half-oval hall called the Church. This contains several projecting galleries, one of them resembling a cathedral choir. There is a gap in the gallery, and at the point of interruption, immediately above, is a rostrum, or pulpit, the rocky canopy of which juts over. The guide leads up from the adjoining galleries, and places a lamp each side of the pulpit, on flat rocks, which seem made for the purpose. Five thousand people could stand in this subterranean temple with ease.

6. From the Church you pass into what is called the Gothic Gallery, from its obvious resemblance to that style of architecture. Here is Mummy Hall, so called because several mummies have been found seated in recesses of the rock.

7. From Mummy Hall you pass into Gothic Avenue, where the resemblance to Gothic architecture very perceptibly increases. The wall juts out in pointed arches and pillars, on the sides of which are various grotesque combinations of rock. One is an elephant's head. The tusk and sleepy eyes are quite perfect.

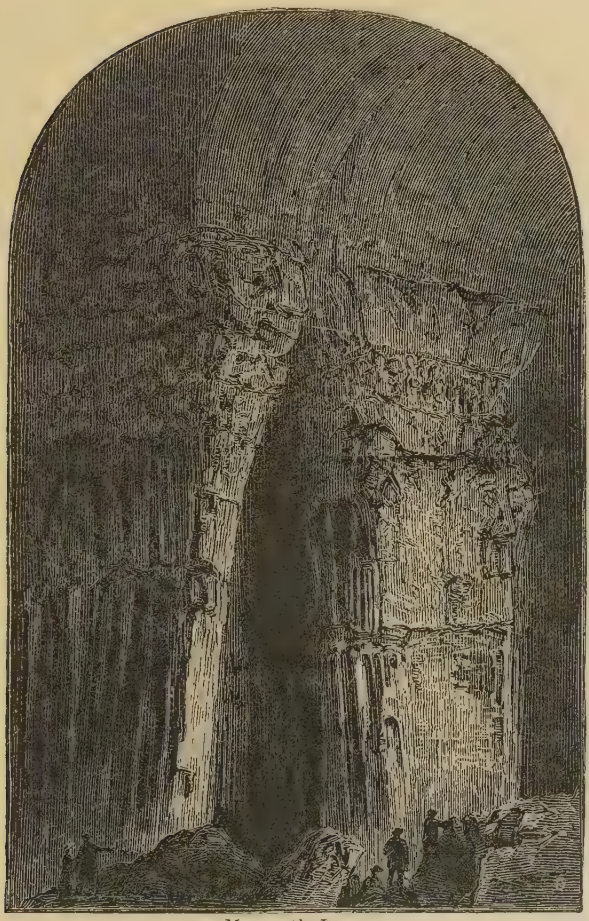
8. As you pass along, the Gothic Avenue narrows, until you come to a porch composed of the first separate columns in the cave. The stalactite and stalagmite formations unite in these irregular masses of brownish yellow, which, when the light shines through them, look like transparent amber.

They are sonorous as a clear-toned bell. A pendant mass, called the Bell, has been recently broken, by being struck too powerfully.

9. The porch of columns leads to the Gothic Chapel, which has the circular form appropriate to a true church. A number of pure stalactite columns fill the nave with arches, which in many places form a perfect Gothic roof. The stalactites fall in rich festoons, strikingly similar to the highly-ornamented chapel of Henry VII. Four columns in the center form a separate arch by themselves, like trees twisted into a grotto, in all irregular and grotesque shapes. Under this arch stands Wilkins's Arm-chair, a stalactite formation well adapted to the human figure. The chapel is the most beautiful specimen of the Gothic in the cave. Two or three of the columns have richly foliated capitals, like the Corinthian.

10. If you turn back to the main avenue, and strike off in another direction, you enter a vast room, with several projecting galleries, called the Ball Room. In close vicinity, as if arranged by the severer school of theologians, is a large amphitheatre, called Satan's Council Chamber. From the center rises a mountain of big stones, rudely piled one above another, in a gradual slope, nearly one hundred feet high. On the top rests a huge rock, big as a house, called Satan's Throne. The vastness, the gloom, partially illumined by the glare of lamps, forcibly remind one of Lucifer on his throne as represented by Martin in his illustrations of Milton. It requires little imagination to transform the uncouth rocks all around the throne into attendant demons. In this Council Chamber the rocks, with singular appropriateness, change from an imitation of Gothic architecture to that of the Egyptian. The dark, massive walls resemble a series of Egyptian tombs, in dull and heavy outline.

11. If you enter one of the caves revealed in the dis-



Mammoth Dome.

tance, you find yourself in a deep ravine, with huge piles of gray rock jutting out more and more, till they nearly meet at the top. Looking upward through this narrow aperture, you see, high, high above you, a vaulted roof of

black rock, studded with brilliant spar, like constellations in the sky seen at midnight from the deep clefts of a mountain. This is called the Star Chamber.

12. But the greatest wonder in this region of the cave is Mammoth Dome, a giant among giants. It is so immensely high and vast that three of the most powerful Bengal Lights illuminate it very imperfectly. That portion of the ceiling which becomes visible is three hundred feet above your head, and remarkably resembles the aisles of Westminster Abbey. It is supposed that the top of this dome is near the surface of the ground.

13. The Mecca's shrine of this pilgrimage is Angelica's Grotto, completely lined and covered with the largest and richest dog's-tooth spar. A person who visited the place, a few years since, laid his sacrilegious hands upon it while the guide's back was turned toward him. He coolly demolished a magnificent mass of spar, sparkling most conspicuously on the very center of the arch, and wrote his own insignificant name in its place. This was *his* fashion of securing immortality! It is well that fairies and giants are powerless in the nineteenth century, else had the indignant genii of the cave crushed his bones to impalpable powder.

14. Passing behind Satan's Throne by a narrow ascending path you come to a vast hall, called the Deserted Chamber. From this you may enter a narrow and very tortuous path, called the Labyrinth, which leads to an immense split, or chasm, in the rocks. Here is placed a ladder, down which you descend twenty-five or thirty feet, and enter a narrow cave below, which brings you to a combination of rocks called the Gothic Window. You stand in this recess, while the guide ascends huge cliffs overhead, and kindles Bengal Lights, by the help of which you see, two hundred feet above you, a Gothic dome of one solid rock, perfectly overawing in its vastness and height. Below is an abyss of

darkness, which no eye but the Eternal can fathom. If, instead of descending the ladder, you pass straight alongside the chasm, you arrive at the Bottomless Pit, beyond which no one ever ventured to proceed till 1838. There is now a narrow bridge of two planks, with a little railing on each side, but, as it is impossible to sustain it by piers, travelers must pass over in the center, one by one, and not touch the railing lest they disturb the balance and overturn the bridge.

15. This walk brings you into Pensico Avenue. Through this, descending more and more, you come to a deep arch, by which you enter the Winding Way, a strangely irregular and zigzag path, so narrow that a very stout man could not squeeze through. In some places the rocks at the sides are on a line with your shoulders, then piled high over your head, and then again you rise above and overlook them all, and see them heaped behind you, like the mighty waves of the Red Sea parted for the Israelites to pass through. The end of this passage is so low and narrow that the traveler is obliged to stoop and squeeze himself through. Suddenly he passes into a vast hall, called the Great Relief; and this leads into the River Hall, at the side of which you have a glimpse of a small cave, called the Smoke House, because it is hung with rocks perfectly in the shape of hams. The River Hall descends like the slope of a mountain. At one side of River Hall is a steep precipice, over which you can look down, by aid of blazing torches, upon a broad, black sheet of water, eighty feet below, called the Dead Sea. This is an awfully impressive place, the sights and sounds of which do not easily pass from memory. He who has seen it will have it vividly brought before him by Affieri's description of Filippo: "Only a transient word or act gives us a short and dubious glimmer, that reveals to us the abysses of his being; dark, lurid, and terrific, as the throat of the infernal pool." As you pass

along, you hear the roar of invisible waterfalls, and at the foot of the slope the river Styx lies before you, deep and black, over-arched with rock. The first glimpse of it brings to mind the descent of Ulysses into hell.

"Where the dark rock o'erhangs the infernal lake,
And mingling streams eternal murmurs make."

Across these unearthly waters the guide can convey but two passengers at once, and these sit motionless in the canoe, with feet turned apart, so as not to disturb the balance. Three lamps are fastened to the prow, the images of which are reflected in the dismal pool.

16. If you are impatient of delay, or eager for new adventures, you can leave your companions lingering about the shore and cross the Styx by a dangerous bridge of precipices overhead. In order to do this, you must ascend a steep cliff and enter a cave above, from an egress of which you find yourself on the bank of the river, eighty feet above its surface, commanding a view of those passing in the boat, and those waiting on the shore. Seen from this height, the lamps in the canoe glare like fiery eyeballs; and the passengers sitting there, so hushed and motionless, look like shadows. The scene is so strangely funereal and spectral that it seems as if the Greeks must have witnessed it before they imagined Charon conveying ghosts to the dim regions of Pluto. Your companions, thus seen, do indeed—

"Skim along the dusky glades
Thin airy shoals, and visionary shades."

If you turn your eye from the canoe to the parties of men and women whom you left waiting on the shore, you will see them, by the gleam of their lamps, scattered in picturesque groups, looming out in bold relief from the dense darkness around them.

17. When you have passed the Styx you soon meet another stream, appropriately called Lethe. The echoes are absolutely stunning. A single voice sounds like a powerful choir; and could an organ be played it would deprive the hearer of his senses. When you have crossed, you enter a high level hall, named the Great Walk, half a mile of which brings you to another river, called the Jordan. In crossing this, the rocks, in one place, descend so low as to leave only eighteen inches for the boat to pass through. Passengers are obliged to double up, and lie on each other's shoulders, till this gap is passed. This uncomfortable position is, however, of short duration, and you suddenly emerge to where the vault of the cave is more than a hundred feet high. In the fall of the year this river often rises, almost instantaneously, over fifty feet above low water mark, a phenomenon supposed to be caused by heavy rains from the upper earth. On this account autumn is an unfavorable season for those who wish to explore the cave throughout. If parties happen to be caught on the other side of Jordan, when the sudden rise takes place, a boat conveys them on the swollen waters to the level on an upper cave, so low that they are obliged to enter on hands and knees and crawl through. This place is called Purgatory. People on the other side, aware of their danger, have a boat in readiness to receive them. The guide usually sings while crossing the Jordan, and his voice is reverberated by a choir of sweet echoes. The only animals ever found in the cave are fish, with which this stream abounds. They are perfectly white, and without eyes; at least they have been subjected to a careful scientific examination, and no organ similar to an eye can be discovered. It would indeed be a useless appendage to creatures that dwell forever in Cimmerian darkness. But, as usual, the acuteness of one sense is increased by the absence of another. These fish are undisturbed by the most powerful glare of light,

but they are alarmed at the slightest agitation of the water; it is therefore exceedingly difficult to catch them.

18. From the Jordan you pass through Silliman's Avenue and Wellington's Gallery to Cleveland's Avenue, the crowning wonder and glory of this subterranean world. At this entrance of the avenue you find yourself surrounded by overhanging stalactites, in the form of rich clusters of grapes, transparent to the light, hard as marble, and round and polished, as if done by a sculptor's hand. This is called Mary's Vineyard; and from it an entrance to the right brings you into a perfectly naked cave, whence you suddenly pass into a large hall, with magnificent columns and rich festoons of stalactite, where stands a mass of stalagmite, shaped like a sarcophagus, in which is an opening like a grave. A Roman Catholic priest first discovered this, about a year ago, and with fervent enthusiasm exclaimed, "The Holy Sepulchre!" a name which it has since borne.

19. To the left of Mary's Vineyard is an inclosure like an arbor, the ceiling and sides of which are studded with snow-white crystallized gypsum, in the form of all sorts of flowers. It is impossible to convey an idea of the exquisite beauty and infinite variety of these delicate formations. In some places roses and lilies seem cut in the rock in bas-relief; in others a graceful bell rises on a long stalk, so slender that it bends at a breath. One is an admirable imitation of Indian corn in tassel, the silky fibers as fine and flexible as can be imagined; another is a group of ostrich plumes, so downy that a zephyr waves it. In some nooks were little parks of trees, in others gracefully-curled leaves like the acanthus rose from the very bosom of the rock. Near this room is the Snow Chamber, the roof and sides of which are covered with particles of brilliant white gypsum, as if snow-balls had been dashed all over the walls. In another apartment the crystals are all in the form of rosettes. In another, called Rebecca's Garland, the flowers

have all arranged themselves into wreaths. One could imagine that some antediluvian giant had here imprisoned some fair daughter of earth, and then, in pity for her loneliness, had employed fairies to deck her bowers with all the splendor of earth and ocean.

20. From Rebecca's Garland you come into a vast hall, of great height, covered with shining drops of gypsum, like oozing water petrified. In the center is a large rock, four feet high, and level at the top, round which several hundred people can sit conveniently. This is called Cornelia's Table, and is frequently used for parties to dine upon. In this hall and in Wellington's Gallery are deposits of fibrous gypsum, snow-white, dry, and resembling asbestos.

21. From the hall of congealed drops you may branch off into a succession of small caves, called Cecilia's Grottoes. Here nearly all the beautiful formations of the surrounding caves—such as grapes, flowers, stars, leaves, coral, etc.—may be found so low that you can conveniently examine their minutest features. One of these little recesses, covered with sparkling spar, set in silvery gypsum, is called Diamond Grotto. Alma's Bowers closes this series of wonderful formations.

22. In most regions of the cave it is hazardous to lose sight of the guide. If you think to walk straight ahead, even for a few rods, and then turn round and return to him, you will find it next to impossible to do so. So many paths come in at acute angles; they look so much alike; and the light of a lamp reveals them so imperfectly that none but the practiced eye of a guide can disentangle their windings. A gentleman who retraced a few steps near the entrance of the cave, to find his hat, lost his way so completely that he was not found for forty-eight hours, though twenty or thirty people were in search of him. Parties are occasionally mustered and counted, to see that none are missing. Should such an accident happen, there is no

danger if the wanderer will remain stationary, for he will soon be missed, and a guide sent after him.

23. One hundred and sixty-five avenues have been discovered in Mammoth Cave, the walk through which is estimated at about three hundred miles. In some places you descend more than a mile into the bowels of the earth. The poetic-minded traveler, after he has traced all the labyrinths, departs with lingering reluctance. As he approaches the entrance, daylight greets him with new and startling beauty. If the sun shines on the verdant sloping hill and the waving trees seen through the arch, they seem like fluid gold; if mere daylight rests upon them, they resemble molten silver. This remarkable richness of appearance is doubtless owing to the contrast with the thick darkness, to which the eye has been so long accustomed.

L. Maria Child.

FALLS OF THE ZAMBESI.

1. We struck the river some miles above the falls, and floated down in a canoe and landed on Garden Island, situated on the lip of the chasm near the center of the river.

2. On reaching that lip, and peering over the giddy height, the wondrous and unique character of the magnificent cascade at once burst upon us. It is rather a hopeless task to convey an idea of it in words, since, as was remarked on the spot, an accomplished artist, even by a number of views, could but impart a faint impression of the glorious scene. The probable mode of its formation may perhaps help to the conception of its peculiar shape.

3. The Victoria Falls have been formed by a crack right across the river, in the hard, black, basaltic rock, which there forms the bed of the Zambesi. The lips of

the crack are still sharp, save about three feet of the edge over which the river rolls. The walls go sheer down from the lips without any projecting crag or symptom of stratification or dislocation. When the mighty rift occurred, no change of level took place in the two parts of the bed of the river thus rent asunder; consequently, in coming down the river to Garden Island, the water suddenly disappears, and we see the opposite side of the cleft, with grass and trees growing where once the river ran, on the same level as that part of its bed on which we sail.

4. The first crack is, in length, a few yards more than the breadth of the Zambesi, which by measurement we found to be a little over 1,860 yards, but this number we resolved to retain as indicating the year in which the fall was for the first time carefully examined. The main stream here runs nearly north and south, and the cleft across it is nearly east and west. The depth of the rift was measured by lowering a line, to the end of which a few bullets and a foot of cotton cloth were tied. One of us lay with his head over a projecting crag, and watched the descending calico, till, after his companions had paid out 310 feet, the weight rested on a sloping projection, probably 50 feet from the water below, the actual bottom being still farther down.

5. On measuring the width of this narrow cleft by sextant, it was found at Garden Island, its narrowest part, to be eighty yards, and at its broadest somewhat more. Into this chasm, of twice the depth of Niagara Falls, the river, a full mile wide, rolls with a deafening roar; and this is Mosi-oa-tunya, or the Victoria Falls.

6. Looking from Garden Island down to the bottom of the abyss, nearly half a mile of water, which has fallen over that portion of the falls to our right, or west of our point of view, is seen collected in a narrow channel twenty or thirty yards wide, and flowing at exactly right angles

to its previous course, to our left; while the other half, or that which fell over the eastern portion of the falls, is seen in the left of the narrow channel below, coming toward our right. Both waters unite midway, in a fearful boiling whirlpool, and find an outlet by a crack situated at right angles to the fissure of the falls. This outlet is about 1,170 yards from the western side of the chasm, and some 600 from the eastern end; the whirlpool is at its commencement.

7. The Zambesi, now apparently not more than twenty or thirty yards wide, rushes and surges south through the narrow escape-channel for 130 yards; then enters a second chasm somewhat deeper, and nearly parallel with the first. Abandoning the bottom of the eastern half of this second chasm to the growth of large trees, it turns sharply off to the west, and forms a promontory, with the escape-channel at its point, of 1,170 yards long, and 416 broad at the base.

8. After reaching this base the river runs abruptly round the head of another promontory, and flows away to the east, in a third chasm; then glides round a third promontory, much narrower than the rest, and away back to the west, in a fourth chasm; and we could see in the distance that it appeared to round still another promontory, and bend once more in another chasm toward the east. In this gigantic zigzag, yet narrow trough, the rocks are all so sharply cut and angular that the idea at once rises that the hard basaltic trap must have been riven into its present shape by a force acting from beneath, and that this probably took place when the ancient inland seas were let off by similar fissures nearer the ocean.

9. The tops of the promontories are in general flat, smooth, and studded with trees. The first, with its base on the east, is at once so narrow that it would be dangerous to walk to its extremity. On the second, however, we

found a broad rhinoceros-path and a hut; but, unless the builder were a hermit, with a pet rhinoceros, we can not conceive what beast or man ever went there for. On reaching the apex of this second eastern promontory we saw the great river, of a deep sea-green color, now sorely compressed, gliding away at least 400 feet below us.

Livingston.

CORAL ISLANDS.

1. It is a singular circumstance, arising from the instability of the crust of the earth, that all the smaller tropical pelagic islands in the Pacific and Indian Oceans are either volcanic or coralline; and it is a startling fact that in most cases where there are volcanoes the land is rising by slow and almost imperceptible degrees above the ocean, where, as there is every reason to believe, those vast spaces, studded with coral islands or atolls, are actually sinking below it, and have been for some time.

2. There are four different kinds of coral formations in the Pacific and Indian Oceans, all entirely produced by the growth of organic beings and their detritus—namely, lagoon-islands or atolls, encircling reefs, barrier reefs, and coral fringes. They are all nearly confined to the tropical regions; the atolls to the Pacific and Indian Oceans alone.

3. An atoll or lagoon-island consists of a chaplet or ring of coral inclosing a lagoon or portion of the ocean in its center. The average breadth of the part of the ring above the surface of the sea is about a quarter of a mile, oftener less, and it seldom rises higher than from six to ten or twelve feet above the waves. Hence the lagoon-islands are not discernible, even at a very small distance, unless they are covered with the cocoa-nut palm, or the pandanus, which is frequently the case.

4. On the outer side this ring or circlet shelves down to the distance of one hundred or two hundred yards from its edge, so that the sea gradually deepens to twenty-five fathoms, beyond which the sides plunge at once into the unfathomable depths of the ocean, with a more rapid descent than the cone of any volcano. Even at the small distance of some hundred yards no bottom has been found with a sounding-line a mile and a half long. All the coral at a moderate depth below water is alive, all above is dead, being the detritus of the living part, washed up by the surf, which is so tremendous on the windward side of the tropical islands of the Pacific and Indian Oceans that it is often heard miles off, and is frequently the first warning to seamen of their approach to an atoll.

5. On the lagoon-side, where the water is calm, the bounding ring or reef shelves into it by a succession of ledges, also of living coral, though not of the same species with those which build the exterior wall and the foundations of the whole ring. The perpetual change of water brought into contact with the external coral by the breakers probably supplies them with more food than they could obtain in a quieter sea, which may account for their more luxuriant growth. At the same time they deprive the whole of the coral in the interior of the most nourishing part of their food, because the still water in the lagoon, being supplied from the exterior by openings in the ring, ceases to produce the hardier corals; and species of more delicate forms and of much slower growth take place.

6. The coral is of the most varied and delicate structure, and of the most varied and beautiful tints; dark-brown, vivid green, rich purple, pink, deep blue, peach-color, yellow, with dazzling white, contrasted with deep shadows, shine through the limpid water, while fish of the most gorgeous hues swim along the branching coral, which are of many different kinds, though all combine in the structure of

these singular islands. Lagoon-islands are sometimes circular, but more frequently oval or irregular in their form. Sometimes they are solitary or in groups, but they occur

Varieties of Coral.

most frequently in elongated archipelagoes with the atolls elongated in the same direction. The grouping of atolls bears a perfect analogy to the grouping of the archipelagoes of ordinary islands.

7. The size of these fairy rings of the ocean varies from two to ninety miles in diameter, and islets are frequently formed on the coral rings by the washing up of the detritus, for they are so low that the waves break over them in high tides or storms. They have openings or channels in their circuit, generally on the leeward side, where the tide enters, and by these ships may sail into the lagoons, which

are excellent harbors, and even on the surface of the circlet or reef itself there are occasionally boat-channels between the islets.

8. Barrier-reefs are of precisely the same structure, differing in their position with regard to the land. A barrier-reef off the northeast coast of the Continent of Australia is the grandest coral formation existing. Rising at once from an unfathomable ocean, it extends one thousand miles along the coast, with a breadth varying from two hundred yards to a mile, and at an average distance of twenty miles from the shore, increasing sometimes to seventy miles. The great arm of the sea included between it and the land is safely navigable throughout its whole length, with a few transverse openings where ships can enter. The reef is nearly twelve hundred miles long.

9. The long ocean-swell, being suddenly impeded by this barrier, lifts itself in one great, continuous line of deep-blue water, which, curling over, falls on the edge of the reef in an unbroken cataract of dazzling white foam. Each line of breaker runs often one or two miles in length, with not a perceptible gap in its continuity. There is a simple grandeur and display of power and beauty in this scene that rises even to sublimity. The unbroken roar of the surf, with its regular pulsation of thunder, as each succeeding swell falls first on the outer edge of the reef, is almost deafening, yet so deep-toned as not to interfere with the slightest nearer and sharper sound.

10. There are strong reasons for believing that a continent once occupied a great part of the tropical Pacific, some part of which subsided by slow and imperceptible degrees. As portions of it gradually sank below the surface of the deep, the tops of mountains and table-lands would remain as islands in magnitude and elevation, and would form archipelagoes elongated in the direction of the mountain chains. Now, the coral-animal which constructs the

outward wall and mass of the reefs never builds laterally, and can not exist at a greater depth than twenty-five or thirty fathoms. Hence, if it began to lay the foundation of its reef on the submerged flanks of an island, it would be obliged to build its wall upward in proportion as the island sank down, so that at length a lagoon would be formed between it and the land.

11. As the subsidence continued, the lagoon would increase, the island would diminish, and the base of the coral-reef would sink deeper and deeper, while the animal would always keep its top just below the surface of the ocean, till at length the island would entirely disappear and a perfect atoll be left. If the island were mountainous, each peak would form a separate island in the lagoon, and the encircled islands would have different forms, which the reefs would follow continuously. This theory perfectly explains the appearance of the lagoon-islands and barrier-reefs, the continuity of the reef, the islands in the middle of the lagoon, the different distances of the reefs from them, and the forms of the archipelago, so exactly similar to the archipelagoes of ordinary islands, all of which are but the tops of submerged mountain-chains, and generally partake of their elongated forms.

Mary Somerville.

THE GEYSERS OF ICELAND.

1. MANY travelers have been compelled to wait a week for an eruption of the Great Geyser, though the interval between the eruptions is not usually more than three days. A good deal depends upon the previous state of the weather, whether it has been wet or dry. Sometimes the eruptions take place within twenty-four hours, but not often. The Great Geyser is a very capricious old gentleman, take him

as you will. He goes up or keeps quiet just to suit himself, and will not put himself the least out of the way to oblige anybody.

2. In former times the eruptions were much more frequent than they are now, occurring at least every six hours, and often at periods of only three or four. Gradually they have been diminished in force and frequency, and it is not improbable that they will cease altogether before the lapse of another century. According to the measurements given by various travelers, among whom may be mentioned Dr. Henderson, Sir George Mackenzie, Forbes, Metcalfe, and Lord Dufferin, the height to which the water ejected varies from eighty to two hundred feet. It is stated that these geysers did not exist prior to the fifteenth century ; and one eruption—that of 1772—is estimated by Olsen and Paulsen to have reached the extraordinary height of three hundred and sixty feet. All these measurements appear to me to be exaggerated.

3. Ascending a slope of dry incrusted earth of a red and yellowish color, we first came upon the Little Geyser, a small orifice in the ground, from which a column of steam arose. A bubbling sound as of boiling water issued from the depths below, but otherwise it presented no remarkable phenomena. In a few minutes more we stood in the middle of a sloping plateau of some half a mile in circuit, which declines into an extensive valley on the right. Within the limits of this area there are some forty springs, and fissures which emit hot water and vapors. None of them are of any considerable size, except the Great Geyser, the Strokhr, and the Little Geyser. The earth seems to be a mere crust of sulphurous deposits and burned clay and rotten trap-rock, and is destitute of vegetation except in a few spots, where patches of grass and moss present a beautiful contrast to the surrounding barrenness. In its quiescent state the scene was not so striking as I had ex-

pected, though the whirling volumes of smoke that issued from the ground in every direction filled my mind with strong premonitions of what might take place at any moment.

4. The guide then took the horses to a pasture up the valley. I amused myself making a few sketches of the surrounding objects, and thinking how strange it was to be here all alone at the geysers of Iceland. How many of my friends knew where I was? Not one, perhaps. And should all the geysers blow up together and boil me on the spot, what would people generally think of it? Or, suppose the ground were to give way and swallow me up, what difference would it make in the price of consols or the temperature of the ocean?

5. When Zoega came back, he said, if I pleased, we would now go to work and cut sods for the Strokhr. It was a favorable time "to make him heave up." The way to make him do that was to make him sick. They didn't agree with his stomach. Every gentleman who came there made it a point to stir him up. He was called the Strokhr because he churned things that were thrown down his throat; and Strokhr means *churn*. I was very anxious to see the performance suggested by Zoega, and readily consented to assist him in getting the sods.

6. The Strokhr lay about a hundred yards from our tent, nearly in a line between the Great and Little Geysers. Externally it presents no very remarkable feature, being nothing more than a hole in the bed of rocks, about five feet in diameter, and slightly funnel-shaped at the orifice. Standing upon the edge, one can see the water boiling up and whirling over about twenty feet below. A hollow, growling noise is heard, varied by an occasional hiss and rush, as if the contents were struggling to get out. It emits hot vapors, and has a slight smell of sulphur; otherwise, it maintains rather a peaceful aspect, considering the infernal temper it gets into when disturbed.

7. Zoega and I worked hard cutting and carrying sods for nearly half an hour, by which time we had a large pile on the edge of the orifice. Zoega said there was enough. I insisted on getting more. "Let us give him a dose that he won't forget." "Oh, sir, nobody ever puts more than that in; it is quite enough." "No; I mean to make him deadly sick. Come on, Zoega." And at it we went again, cutting the sod, and carrying it up in a great heap by the hole. When we had about a ton all ready, I said to Zoega, "Now, Zoega, fire away, and I'll stand here and see how it works."

8. Then Zoega pushed it all over, and it went slapping and dashing down into the steaming shaft. For a little while it whirled about, and surged, and boiled, and tumbled over and over in the depths of the churn with a hollow, swashing noise, terribly ominous of what was to come. I peeped over the edge to try if I could detect the first symptoms of the approaching eruption. Zoega walked quietly away about twenty steps, saying he preferred not to be too close. There was a sudden growl and a rumble, a terrible plunging about and swashing of the sods below, and fierce, whirling clouds of steam flew up, almost blinding me as they passed.

9. "Sir," said Zoega, gravely, "you had better stand away. It comes up very suddenly when it once starts." "Don't be afraid, Zoega; I'll keep a sharp lookout for it. You may depend, there's not a geyser in Iceland can catch me when I make a break." "Very well, sir, but I'd advise you to be careful." Notwithstanding this good counsel, I could not resist the fascination of looking in. There was another tremendous commotion going on—a roar, a whirling over of the sods, and clouds of steam flying up. This time I ran back a few steps. But it was a false alarm. Nothing came of it. The heaving mass seemed to be producing the desired effect, however. The Strokhr

was evidently getting very sick. I looked over once more. All below was a rumbling, tumbling black mass, dashing over and over against the sides of the churn.

10. Soon a threatening roar, not to be mistaken, startled me. "Look out, sir!" shouted Zoega—"look out!" Unlike the Frenchman who looked out when he should have looked in, I unconsciously looked in when I should have looked out. With a suddenness that astonished me, up shot the seething mass almost in my face. One galvanic jump—an involuntary shout of triumph—and I was rolling heels over head on the crust of earth about ten feet off, the hot water and clumps of sod tumbling down about me in every direction. Another scramble brought me to my feet, of which I made such good use that I was forty yards beyond Zoega before I knew distinctly what had happened.

11. The display was really magnificent. An immense dark column shot into the air to the height of sixty or seventy feet, composed of innumerable jets of water and whirling masses of sod. It resembled a thousand fountains joined together, each with a separate source of expulsion. The hissing hot water, blackened by the boiled clay and turf, spurted up in countless revolving circlets, spreading out in every direction and falling in torrents over the earth, which was deluged for fifty feet around with the dark, steaming flood. This, again sweeping into the mouth of the funnel, fell in thick streams into the churn, carrying with it the sods that were scattered within its vortex, and once more heaved and surged about in the huge caldron below.

12. The eruption continued for about five minutes, without any apparent diminution of force. It then subsided into fitful and convulsive jets, as if making a last effort, and finally disappeared with a deep growl of disappointment. All was now quiet, save the gurgling of the

murky water as it sought its way back. I took my sketch-book and resolved to seize the next opportunity for a good view of the eruption, taking, in the mean time, a general outline of the locality, including a glimpse of the Laugarfjal. Just as I had finished up to the orifice, the same angry roar which had first startled me was repeated, and up shot the dark, boiling flood in grander style than ever. This time it was absolutely fearful. There could be no doubt the dose of sods we had tumbled into the stomach of the old gentleman was making him not only dreadfully sick, but furiously angry.

13. At this moment, as if the elements sympathized in his distress, fierce gusts of wind began to blow down from the Laugarfjal. So sudden and violent were they that it was difficult to maintain a foothold in our exposed position, and the tall column of fountains, struck with the full violence of the wind, presented a splendid spectacle of strength and rage—surging and swaying and battling to maintain its erect position, and showing in every motion the irresistible power with which it was ejected. Steam and water and sods went whirling down into the valley; the very air was darkened with the shriven and scattered fragments; and a black deluge fell to the leeward hundreds of yards beyond the orifice. The weird and barren aspect of the surrounding scenery was never more impressive.

14. After the two eruptions the waters of the Strokhr again subsided into sobs and convulsive throes. Some half an hour now elapsed before anything more took place. Then there was another series of growls and a terrible swashing about down in the churn, as if all the demons under earth were trying to drown one another, and up shot the murky flood for the third time. Thus it continued at intervals more and more remote, till a late hour in the night, making desperate efforts to disgorge the sods that were swept back after every ejection, and to rid itself of

the foul water that remained. These attempts gradually grew fainter and fainter, subsiding at last into mere grumblings. I looked into the orifice the next morning, and was surprised to find the water yet discolored. It was evident, from the uneasy manner in which it surged about, that the dose still produced unpleasant effects.

15. The Great Geyser gave no sign of an eruption, but in the night, while lying in my tent, in the midst of a confused dream, I heard the booming of cannon, at first far down in the earth, but gradually growing nearer, till with a start I awoke. Still the guns boomed ; surely the sounds were real. I could not be deceived. Starting to my feet, I listened. Splashing and surging waters, and dull, heavy reports sounded in the air. I dashed aside the lining of the tent and looked out. Never shall I forget that sight—the Great Geyser in full eruption : a tremendous volume of water stood in bold relief against the sky, like a tall weeping-willow in winter, swaying before the wind, and shaking the white frost from its drooping branches. Whirling vapors and white wreaths floated off toward the valley. All was clear overhead. A spectral light, which was neither of day nor of night, shone upon the dark, lava-covered earth. The rush and plashing of the fountain and the booming of the subterranean guns fell with a startling distinctness upon the solitude. Streams of glittering white water swept the surface of the great basin on all sides, and dashed hissing and steaming into the encircling fissures. A feathery spray sparkled through the air. The earth trembled, and sudden gusts of wind whirled down with a moaning sound from the wild gorges of the Laugarfjal.

16. It did not appear to me that the height of the fountain was so great as it is generally represented. So far as I could judge, the greatest altitude at any time from the commencement of the eruption was not over sixty feet.

Its volume, however, greatly exceeded my expectations, and the beauty of its form surpassed all description. I had never before seen, and never again expect to see, anything equal to it. This magnificent display lasted altogether about ten minutes. The eruption was somewhat spasmodic in its operation, increasing or diminishing in force at each moment, till, with a sudden dash, all the water that remained was ejected, and then after a few gurgling throes all was silent.

17. There are various theories concerning the cause of these eruptions of water in Iceland. That of Lyell, the geologist, seems the most reasonable. The earth, as it is well known, increases in heat at a certain ratio corresponding with the depths from the surface. There are cavities in many parts of it, arising from subterranean disturbances, into which the water percolates from the upper strata. In Iceland the probability is that these cavities are both numerous and extensive, owing to volcanic causes, and form large receivers for the water of the surrounding neighborhood.

18. Wherever there is a natural outlet, as at the Geysers, this water, which is boiling by the heat of the earth, is forced to the surface by compression of steam, and remains at the mouth of the pipe, or shaft, until an accumulation of compressed steam drives it up in the form of a fountain. The periodical occurrence of these eruptions in some of the hot springs, and not in others, may arise from a difference in the depth of the receiver, or more probably from the existence of several outlets for the escape of steam in some, and only one in others. A good illustration of this theory is presented in the boiling of an ordinary tea-kettle. When the compression of steam is great, the cover is lifted up, by which means the pressure is relieved and the water subsides. The same thing is repeated until the space within the kettle becomes suffi-

ciently large to admit of a more rapid condensation of the steam.

19. The action of the Strokhr, which, as I have shown, differs from that of the Great Geyser, may be accounted for on the same general principle. The foreign substances thrown in on the top of the boiling water stop the escape of steam, which, under ordinary circumstances, is sufficiently great not to require the periodical relief of an eruption. An accumulation of compressed steam takes place in the reservoir below, and this continues until the obstruction is ejected.

J. Ross Browne.

VISIT TO THE GEYSERS OF CALIFORNIA.

1. In the morning we started on horseback for the Geysers, twelve miles distant, through a nipping and eager air which made our fingers tingle. We passed a single dwelling; hundreds of grazing sheep, and one immense doe with her long-legged fawn, galloping along the crests.

2. A few miles to our left were the snowy peaks of the Coast Range; and nearer, steep-down under our feet, the magnificent valley of Russian River, dotted with live-oak and redwood—a valley of rolling ridges, pleasant farm-houses with great barns, and broad, green meadows, their brooks and lakelets shining like mirrors.

3. After climbing for several miles, our path winds along a unique natural embankment, known as the Hog-back, a mountain-summit, like a ridge-pole on a steep roof. Now the rains had cut and gashed it until, at some points, our horses could barely find a path; but, repaired in summer, it is just wide enough for carriage-wheels. On each side one looks down a precipitous bank fifteen hundred or two thousand feet. If the driver happened to diverge ten inches from the track, the load would reach the

bottom much in the condition of a bushel of apples after passing through a cider-mill.

4. Two miles from the Geysers we began to hear them roar like ocean-steamers. The smoke is sometimes seen here; but this morning the atmosphere was not favorable. We were now fourteen hundred feet higher than Foss Station, and five thousand feet above the sea. From this point our road abruptly pitches down into the sulphurous valley. In the remaining two miles, it descends sixteen hundred feet, with thirty-five sharp turns, often on the edge of precipitous banks.

5. Turning a corner, I saw the column of smoke from Steamboat Spring, rising fully three hundred feet from the ground. At this distance it sounds like a railway-train in motion; but nearer it is a perfect imitation of a great boat blowing off her steam.

6. Pluton River, twenty or thirty feet wide, and running westward, tumbles laughingly down the rocks, shaded by overhanging trees and vines. On its south bank we first visited the Iron Spring, a little basin two or three feet square. The water, intensely irony to the taste, is covered with a yellowish-green scum, and discolors everything in the vicinity. With the late fall freshets the rustic log bridge spanning the river had gone on a voyage of discovery; so we crossed the stream as best we might by jumping from rock to rock.

7. There we were at the mouth of the Devil's Cañon, which shuts in a little lateral creek running south and emptying into Pluton River. On this branch of the main stream are the principal Geysers. Two hundred yards up the creek we reached the bath-houses. The water—pure and cold at the head of the stream, half a mile above, then heated by the springs, and afterward cooling by exposure to the air—is here just warm enough for pleasant ablution.

8. The steep walls of the narrow ravine rise from fifty

to one hundred and fifty feet; bare, spongy, ashen, clayey soil, without the faintest sign of grass or shrub. Through this chasm rushes the curious stream. The narrow summer path beside it was now washed away, compelling us to climb the slippery rocks, and sometimes to trust the seething, uncertain earth.

9. Soon we were among clouds of steam issuing from the soil at the water's edge, and thence extending far up the bank; the mud everywhere too hot for one to bear his hand in it. We visited the Grotto, where tree-trunks and branches extend across the creek, over wild, jagged rocks, and then a delicious little cascade, which forms a natural cold shower-bath. Now we began to encounter hot *streams* bubbling up beside the creek, some clear and blue, others, within two feet of them, black; some very bitter, forming white incrustations of salt; and others depositing fine-fibered, exquisite flowers of sulphur, like delicate yellow or black moss. Hot, cold, and boiling springs are side by side, each with its own individual hue—blue, black, brown, red, green, yellow, pink, or gray.

10. We passed the Devil's Wash-bowl, the Devil's Kitchen, and other localities quite as infernal in sound, heat, and smell as in name. The jets of steam and the bubbling up of hot water are curious enough; but the boiling *within* hundreds of cavities under-ground, dimly seen, but clearly heard through their narrow mouths, is far more startling and impressive. The different springs emit many varieties of sound: the singing of a tea-kettle, the pulpy boiling of a huge tank of potatoes, the distant roar of a great quartz-crusher, the cob-cracking of a grist-mill, the sough of the wind, the murmur of the pine, the dash of the waves—all liquid, vibrating, tremulous notes.

11. The principal group is beside the creek, for a quarter of a mile; but there are fully one thousand places where steam issues from the banks. At times the ground shakes

so as to rattle crockery in the hotel, one third of a mile away. The earth trembles and shudders as if in terror of going back to the first throbs of chaos, of being again without form and void, and darkness upon the face of the deep.

12. The Witches' Caldron was seven feet deep, with circular walls two or three yards across, but the lower part of the rocky rim has broken away, leaving only a little seething pool of inky blackness, so hot that it will boil an egg. Several times we burned our fingers and caught stifling blasts from the hot, natural furnace.

13. At the head of the cañon, fifty feet up a sharp hill, is Steamboat Spring, greatest of all. It has no water, but consists entirely of steam. We climbed the bank, and crept over brittle, yielding earth, as near the mouth as we dared. Its aperture is as large as the body of a man. In the shifting wind the enveloping, scorching, sulphurous steam is neither pleasant nor safe; but its constant roar and its great column rising upright for hundreds of feet are peculiarly impressive.

14. Recrossing the gorge, we ascended a high plateau, with a broken rim called the Crater, and really suggesting the mouth of an extinct volcano. Here are the Vent-Holes, two springs a few feet apart, which will boil an egg in a minute and a half, and from which steam escapes with great force. A stone, as large as one's fist, dropped into either of them, bounds up three or four feet, like an India-rubber ball. I confess a boyish desire to see two steam-whistles inserted here, and listen to their shrill, unceasing, maddening screech. I know of no place where so much noise could be had for so little money!

15. Other geysers abound for six miles along Pluton River, but I have named the largest and most interesting. In character their variety is very great, though soda, magnesia, alum, Epsom-salts, and various salts of iron predominate.

16. When their discoverer first stumbled upon them, his sensations must have been worth experiencing. Indians, who regard them with wildest terror, can not be induced to approach ; and some white visitors never dare to enter the cañon. The smell of brimstone, hissing of steam, seething and throbbing of struggling waters, and the underground roaring and trembling, do seem peculiarly diabolical, and suggest Inferno very thinly crusted over.

A. D. Richardson.

THE GEYSERS OF THE NATIONAL PARK.

1. "ENTERING the basin from the north, and following the banks of the Fire-Hole River, whose direction there is about northeast, a series of rapids, quite near together, is encountered, when the river makes a sharp bend to the southwest, at which point is found a small steam-jet upon the right. A warm stream comes in from the left, falling over a bank ten feet in height. A short distance beyond, a second rapid is found, and then another, about one hundred yards farther on, where the gate of the Geyser Basin is entered. Here, on either side of the river, are two lively geysers called the Sentinels. The one on the left is in constant agitation, its waters revolving horizontally with great violence, and occasionally spouting upward to the height of twenty feet, the lateral direction being fifty feet. Enormous masses of steam are ejected. The crater of this geyser is three feet by ten.

2. "The opposite Sentinel is not so constantly active, and is smaller. The rapids here are two hundred yards in length, with a fall of thirty feet. Following the bank of the river, whose general course is from the southeast, though with many windings, two hundred and fifty yards from the

gate we reach three geysers acting in concert. When in full action, the display from these is very fine. The waters spread out in the shape of a fan, in consequence of which they have been named the Fan Geysers. A plateau, opposite the latter, contains fifteen hot springs, of various characteristics; some are of a deep-blue color, from sulphate of copper held in solution, and having fanciful caverns distinctly visible below the surface of the water.

3. "The openings at the surface are often beautifully edged with delicately wrought fringes of scalloped rock. One variety deposits a red or brown leathery substance, partially adhering to the sides and bottom of the cavern, and waving to and fro in the water like plants. The size of these springs varies from five to forty feet in diameter. One hundred yards farther up the east side of the stream is found a double geyser, a stream from one of its orifices playing to the height of eighty or ninety feet, emitting large volumes of steam. From the formation of its crater it was named the Well Geyser. Above is a pine-swamp of cold water, opposite which, and just above the plateau previously mentioned, are found some of the most interesting and beautiful geysers of the whole basin.

4. "First we come upon two smaller geysers near a large spring of blue water, while a few yards beyond are seen the walls and arches of the Grotto. This is an exceedingly intricate formation, eight feet in height, and ninety in circumference. It is hollowed into fantastic arches, with pillars and walls of almost indescribable variety. This geyser plays to the height of sixty feet several times during twenty-four hours. The water, as it issues from its numerous apertures, has a very striking and picturesque effect.

5. "Near the Grotto is a large crater, elevated four feet above the surface of the hill, having a rough-shaped opening, measuring two by two and a half feet. Two hundred yards farther up are two very fine large geysers, between

which and the Grotto are two boiling springs. Proceeding one hundred and fifty yards farther, and passing two hot springs, a remarkable group of geysers is discovered. One of these has a huge crater five feet in diameter, shaped something like the base of a horn—one side broken down—the highest point being fifteen feet above the mound on which it stands. This proved to be a tremendous geyser, which has been called the Giant.

The Giant Geyser.

6. "It throws a column of water the size of the opening to the measured altitude of one hundred and thirty feet, and continues the display for an hour and a half. The amount of water discharged was immense, about equal in quantity to that in

the river, the volume of which, during the eruption, was doubled. But one eruption of this geyser was observed. Its periodic turns were not, therefore, determined. Another large crater close by has several orifices, and, with ten small jets surrounding it, formed, probably, one connected system. The hill built up by this group covers an acre of ground, and is thirty feet in height."

Lieutenant Barlow.

THE YOSEMITE VALLEY.

1. On the 7th of August, after four days' hard travel from San Francisco, we galloped out of the pine-woods, dismounted, stood upon the rocky precipice of Inspiration Point, and looked down into Yosemite as one from a house-top looks down into his garden, or as he would view the interior of some stupendous, roofless cathedral from the top of one of its towering walls. In the distance, across the gorge, were snow-streaked mountains. Right under us was the narrow, winding basin of meadow, grove, and shining river, shut in by granite walls from two thousand to five thousand feet high—walls with immense turrets of bare rock, walls so upright and perfect that an expert cragman can climb out of the valley at only three or four points.

2. Flinging a pebble from the rock upon which we stood, and looking over the brink, I saw it fall more than half a mile before striking. Glancing across the narrow, profound chasm, I surveyed an unbroken, seamless wall of granite, two thirds of a mile high, and *more* than perpendicular, the top projecting one hundred and fifty feet over the base. Turning toward the upper end of the valley, I

beheld a half-dome of rock, one mile high, and on its summit a solitary gigantic cedar, appearing like the merest twig. Originally a vast granite mountain, it was riven from top to bottom by some ancient convulsion, which cleft asunder the everlasting hills and rent the great globe itself.

3. The measureless inclosing walls, with these leading towers and turrets, gray, brown, and white rock, darkly veined from summit to base with streaks and ribbons of falling water; hills, almost upright, yet studded with tenacious firs and cedars; and the deep-down level floor of grass, with its thread of river and pygmy trees—all burst upon me at once. Nature had lifted her curtain to reveal the vast and the infinite. It elicited no adjectives, no exclamations. With bewildering sense of divine power and human littleness, I could only gaze in silence, till the view strained my brain and pained my eyes, compelling me to turn away and rest from its oppressive magnitude.

4. Riding for two hours, down, down, among sharp rocks and dizzy zigzags, where the five ladies of our party found it difficult to keep in their saddles, and narrowly escaped pitching over their horses' heads, we were in the valley, entering by the Mariposa trail. The length of the valley or cleft is nine miles; its average width three fourths of a mile. The following dimensions are in feet:

Average width of Merced River	69
Height of Yosemite Falls (Upper, 1,600; Rapids, 434; Lower, 600)	2,634
Width of these falls at upper summit in August	15
Height of Bridal-Veil Fall	940
Height of South Fork Fall	740
Height of Vernal Fall	330
Height of Nevada Fall	700
Width of Vernal and Nevada, at summits	40
Height of El Capitan Rock	3,900
Height of Three Brothers Rock (three turrets)	3,437

Height of North Dome Rock	3,720
Height of Inspiration Point Rock	3,000
Height of Cathedral Rocks (two turrets)	3,000
Height of Sentinel Rock	3,270
Height of Mount Colfax	3,400
Height of Mount Star King	4,500
Height of South Dome Rock	6,000

5. The rock mountains are the great feature; indeed, *they* are Yosemite. The nine granite walls, which range in altitude from three to six thousand feet, are the most striking examples on the globe of the masonry of nature. Their dimensions are so vast that they utterly outrun our ordinary standards of comparison. One might as well be told of a wall, upright like the side of a house for ten thousand miles, as for two thirds of one mile. When we speak of a giant twenty-five feet high, it conveys some definite impression; but to tell of one three thousand feet high, would only bewilder, and convey no meaning whatever. So, at first, these stupendous walls painfully confuse the mind. By degrees, day after day, the sight of them clears it, until, at last, one receives a just impression of their solemn immensity.

6. Cathedral Rocks have two turrets, and look like some Titanic religious pile. Sentinel towers alone, grand and hoary. The South Dome, a mile high, is really a semi-dome. Cleft from top to bottom, one half of it went on the other side of the chasm and disappeared, when the great mountains were rent in twain. The gigantic North Dome is as round and perfect as the cupola of the national Capitol. Three Brothers is a triple-pointed mass of solid granite. All these rocks, and scores of lesser ones, which would be noticeable anywhere else in the world, exhibit vegetation. Hardy cedars, thrusting roots into imperceptible crevices of their upright sides, apparently growing out of unbroken stone, have braved a thousand years the battle and the breeze.

Yosemite Valley.

7. El Capitan is grandest of all. No tuft of beard shades or fringes its closely shaven face. No tenacious vine even can fasten its tendrils to climb that smooth, seamless, stupendous wall. There it will stand—grandeur, massiveness, indestructibility—till the heavens shall pass away with a great noise, and the elements melt with fervent

heat. Its Indian name is Tu-toch-ah-nu-lah. Both this and the Spanish word signify "the Leader," but were applied in the sense of the Supreme Being. One noble mountain most appropriately commemorates Thomas Star King. Another, immediately in the rear of Hutchings's, our party found nameless, and, except the Speaker himself, unanimously voted to christen it Mount Colfax.

8. Yet Yosemite is the loftiest water-fall in the world. Think of a cataract, or cascade, of half a mile with only a single break! It is sixteen times higher than Niagara. We did not climb to the rapids and foot of the Upper Fall; that is difficult, hazardous, and exhausting. Nor did we go to the extreme summit; that requires a circuitous ride of twenty-five miles out of the valley. But we spent much time at the base of the Lower Fall, shut in by towering walls of dark granite.

9. Much of the water turns to mist before reaching the bottom; yet looking up from under it the volume seems great. Six hundred feet above, a body of ragged, snowy foam, with dishevcled tresses, rushes over the brink, and comes singing down in slender column, swayed to and fro by the wind like a long strand of lace. For four hundred feet the descent is unruffled; then striking a broad, inclining rock, like the roof of a house, the water spreads over it, a thin, shining, transparent apron, fringed with delicate gauze, and glides swiftly to the bottom. By moonlight the whole looks like a long, white ribbon, hanging against the brown wall, with its lower end widening and unraveled.

10. Bridal-Veil Fall, unbroken, much narrower, and softened by a delicate mist which half hides it, is a strip of white, fluttering foam, which the wind swings like a silken pendulum. It is spanned by a rainbow; and at some points the thin, glass-like sheet reveals every hue of the wall behind it. Before reaching the end of its long de-

scent, a rill no longer, it is completely transformed to spray, the Niobe of cascades dissolved in tears.

11. Above Hutchings's the valley breaks into three cañons, and the Merced into three forks. North Fork passes through Mirror Lake, the very soul of transparency. It reflects grass, trees, rocks, mountains, and sky with such perfect and startling vividness that one can not believe them images and shadows. He fancies the world turned upside down, and shrinks back from the lake lest he should tumble over the edge into the inverted dome of blue sky.

12. On the Middle or main Fork is Vernal Fall, difficult of access. Leaving our horses three miles from the hotel, we climbed for two weary hours along dizzy shelves and up sharp rocks where the trail rises one thousand feet to the mile; pine-woods all around us; at our left and far below, the river chafing and roaring in its stony bed. Then we stood at the foot of Vernal Fall. Bridal Veil and Yosemite are on little lateral creeks. Vernal is the full swelling torrent of the Merced. Those creep softly and slowly down, as if in pain and hesitation; this rushes eagerly over gloomy brown rocks, then leaps headlong for more than three hundred feet, roaring like a miniature Niagara.

13. Rainbows of dazzling brightness shine at its base. When standing alone, viewing this fall, I saw what to Hebrew prophet had been a vision of heaven, or the visible pressure of the Almighty. It was the round rainbow, the complete circle. In the afternoon sun I stood upon a rock a hundred feet from the base of the fall, and nearly on a level with it. There were two brilliant rainbows of usual form, the crescent, the bow proper. But while I looked, the two horns of the inner or lower crescent suddenly lengthened, extending on each side to my feet, an entire circle, perfect as a finger-ring. In two or three seconds it passed away, shrinking to the first dimensions. Ten min-

utes later it formed again, and again as suddenly disappeared. Every sharp gust of wind showering the spray over me revealed for a moment the round rainbow. Completely drenched, I stood for an hour and a half, and saw full twenty times that dazzling circle of violet and gold, on a groundwork of wet dark rock, gay dripping flowers, and vivid grass. I never looked upon any other scene in nature so beautiful and impressive.

14. Climbing a high rock-wall by crazy wooden ladders, we continued up the cañon for three quarters of a mile to Nevada Fall, where the Merced tumbles seven hundred feet, in "white and swaying mistiness." Near the bottom it strikes an inclined rock, and spreads upon it a sheet of floating silver tissue a hundred and thirty feet wide.

15. Passing over a wide, gaping crack or chasm in this rocky grade, the thin sheet of water breaks into delicate, shining net-work, then into myriads of shining beads, and finally into long sparkling threads, an exquisite silken fringe to the great white curtain.

16. These names are peculiarly fitting. Bridal Veil indeed looks like a veil of lace. In summer, when Bridal Veil and Yosemite dwarf, Vernal still pours its ample torrent, and Nevada is always white as a snow-drift.

17. The Yosemite is height; the Vernal is volume; the Bridal Veil is softness; but the Nevada is height, volume, and softness combined. South Fork cataract, most inaccessible of all, we did not visit. In spring each fall has twenty times as much water as in summer.

18. On the whole, Yosemite is incomparably the most wonderful feature of our continent. European travelers agree that transatlantic scenery has nothing at all approaching it. Unless the unexplored Himalayas hide some rival, there is no spot, the wide world over, of such varied beauty and measureless grandeur.

A. D. Richardson.

THE BIG TREES OF CALIFORNIA.

1. The Mariposa Big Trees are thirty miles from Yosemite Valley. We visited them by diverging five miles from our homeward route to San Francisco. Six hundred of these mammoths are scattered among the noble pines of twelve hundred and eighty acres. Many of the pines are two hundred feet high. Elsewhere *they* would be kings of the forest; but among these hoary giants they become puny, insignificant children. Pygmies or Alps may be pygmies still, but pyramids are not always pyramids in vales.

2. The Big Trees had been considered redwoods, a species of cedar abounding upon this coast, but the botanists decide otherwise, and name them *Sequoias.* They are the oldest and most stupendous vegetable products existing upon the globe. Already twenty groves have been discovered in California. The Mariposa is largest and finest, though the Calaveras, fifty miles to the northward, is better known.

3. Of the Mariposa sequoias, two hundred are more than twelve feet in diameter, fifty more than sixteen feet, and six more than thirty feet. The largest, called the Prostrate Monarch, now lying upon the ground leafless and branchless, is believed to have fallen fully one hundred and fifty years ago. Fire has consumed much of the trunk, but enough remains to show that, with the bark on, it must have been *forty feet* in thickness. Figures give little idea of such dimensions. Measure up forty feet on a house-wall, then four hundred feet along the ground, and try to picture the diameter and height of the Prostrate Monarch as it stood a thousand years ago.

4. The tops of the largest trees are broken off, leaving their average height about two hundred and fifty feet,

Giant Trees.

though some range between three and four hundred feet. We saw one branch—not a fork, but an honest, lateral branch—six feet in diameter, growing from the stem eighty feet above the ground. Into a cavity burned in the side of another standing tree, fifteen of us rode together. Without crouching, we all sat upon our horses in that black, novel chamber, though it occupies less than half the thickness of the immense trunk.

5. Through a stem lying upon the ground fire has bored like an auger. Our entire cavalcade, including all the tall men, all the fat men, and all the ample skirts, rode through it from end to end, like a railway-train through a tunnel.

6. The largest standing tree is the Grizzly Giant. Its bark is nearly two feet thick. If it were cut off smoothly, fifty horses could easily stand, or sixteen couples dance, upon the stump. If the trunk were hollowed to a shell, it would hold more freight than a man-of-war or a first-class ocean-steamer two hundred and fifty feet long.

7. One of the Calaveras sequoias was cut down by boring with augers and sawing the spaces between. The work employed five men for twenty-five days. When fully cut off, the tree stubbornly continued

to stand, only yielding at last to a mammoth wedge and a powerful battering-ram.

8. The pine-cones are cylindrical, and sometimes nearly two feet long. Those of the Big Trees are round, and not larger than apples. Seedlings from them are growing in English parks, where a mania prevails for coniferous trees. Two hundred are planted in our great Central Park, and many more in the nurseries of Western New York. They are thrifty and vigorous; how large they will become is an interesting problem.

9. There seems to be no convincing or even plausible theory of their origin—I should rather say of their preservation; for they are children of a long-ago climatic era. The age of giants lingers on the entire Pacific coast.

10. Through California and Oregon stupendous redwoods are everywhere numerous; and on the summit of the Sierras, almost a mile above sea-level, grow sugar-pines ten and twelve feet in diameter. Well says Holmes:

> "In fact, there's nothing that keeps its youth—
> So far as I know—but a tree and truth."

11. It was once thought incredible that the yew should live a thousand years. But these monster sequoias are the world's patriarchs. Some botanists date their birth far back of earliest human history; none estimate their age at less than eighteen hundred years. Perchance their youth saw the awkward, thundering mastodon canter over the hills; and the hundred-feet-long reptile, of many legs and mouth like a volcano, crawl sluggishly through torrid swamps.

12. They were living when the father of poets, old, blind, and vagabond, sang his immortal song; when the sage of Athens, "that most Christian heathen," calmly drank the hemlock; when the carpenter of Judea, from whom the whole world now computes its time, was a man

of sorrows and acquainted with grief, despised and rejected of men.

13. An act of Congress has segregated Yosemite Valley and the Mariposa groves of Big Trees from the general public domain, setting them apart as pleasure-grounds for the people of the United States and their heirs and assigns for ever. This wise legislation secures to the proper national uses incomparably the largest and grandest park and the sublimest natural scenery in the whole world. They are under the care of a commissioner appointed by the Governor of California, for their preservation and protection, to render them accessible, keep them free from mutilation, and see that no vandal hand of art attempts to improve upon the simplicity and grandeur of Nature.

A. D. Richardson.

THE CEDARS OF LEBANON.

1. Travelers often ascend into the neighborhood of Mount Sunnin, to visit certain groves of cedars which still stand there, the venerable remains and memorials of the vast forest which in former times waved upon the mountains, and gave them so great an historical celebrity. They make this journey usually from Beyrout, one of the chief sea-ports of Syria, which stands on the shore a little to the southward of the peak of Sunnin. From Beyrout to the cedar-groves it is three days' journey, and there are two principal routes between which the traveler has to choose. One strikes directly into the interior, and loses itself soon among the mountains. The other follows the sea-shore to the northward for a day, affording the traveler many a fine prospect of the sea, as the mule-track which he follows

winds along the margin of the beach, or passes over some lofty promontory.

2. Whichever route he takes, the preparations for a journey of several days, among mountain-passes so rugged and wild, form usually a very exciting scene. For as there are no inns in these regions, and no accommodations of any kind for the use of travelers, those who journey must take with them almost everything that they expect to require—their dwellings even, as well as their food and clothing—so as to be entirely independent of the population of the country, in every emergency which may occur during the tour. Tents, carpets, arms, stores of food, and utensils for cooking, must all be carried, and while the caravan is making ready for the march, these things are assembled confusedly on the ground, waiting for the strange and foreign-looking servants, with turbans on their heads, and cimeters by their sides, to pack them on the backs of the beasts that are to bear them. The work of preparation goes on in the midst of a scene of noise and confusion indescribable. The neighing of horses, the vociferations of men, the galloping of messengers to and fro, the calls, the commands, and the uproar, often greatly astonish as well as amuse the traveler who is accustomed to the order and decorum which generally prevail in the traveling arrangements of the Western world.

3. At length the long cavalcade is in motion, and it proceeds slowly, winding its way along the coast to the northward, the tourist having chosen, we will suppose, the route that leads him along the sea. As he advances, the scenes and the objects which attract his attention are characteristic and peculiar. Here is a small but pretty valley opening to the sea, with boats upon the beach before it, laden with wheat and barley, while groves of mulberry-trees, for the production of silk, adorn the terraces and hill-sides around. A little beyond is a "sponge-fishery," where fine

sponges are collected annually from the rocks, destined, perhaps, some of them, for the toilets of ladies in the remotest quarters of the civilized world. Farther still is a castle on a rock, or some plain and simple monument on the brow of a promontory, overlooking the sea, the history and design of which have long been forgotten. Sometimes on the journey the traveler meets the people of the country. They may be Druse ladies, richly dressed, and riding on donkeys—their whole persons covered with a veil which is supported by a sort of horn-like projection from their foreheads; or a long train of mules, laden with produce, and descending from the interior to the sea; or a company of shepherds driving their flocks to or from their mountain-pastures.

4. At length the day's journey comes to an end. The party encamps for the night; and the next morning, on resuming the journey, they turn from the shore, and begin to ascend the mountains, the road leading them sometimes up steep and difficult ascents, and sometimes through winding and gloomy ravines. Green and cultivated valleys appear here and there, with villages and scattered habitations, and fields of barley and maize, and groves of figs, olives, and mulberries adorning them. The road, in the mean time, ascending continually, becomes more and more wild, until at last it reaches the summit of the pass, and then begins again to descend. On the third day the traveler approaches the cedars.

5. The phrase "The Cedars," as used on Mount Lebanon, denotes one particular grove of ancient trees which stands at a little distance to the northward from Mount Sunnin, and has been held in great reverence for many centuries. The principal trees that grow there are of very great age, and are held sacred by all the people of the country. They are believed to be a part of the original growth which was standing in the days of Solomon. There are other groves

of smaller trees, in various parts of the mountains, but these have been watched and visited by pilgrims, and almost worshiped by the simple-minded Christians who have dwelt around them, for many ages, and thus they occupy quite a prominent place among the monuments of the history of mankind. The traveler, when he at length draws near to the sacred grove, is filled with sublime and solemn emotions.

6. The approach to the spot is through scenery of the most delightful character. The soil of the valleys is extremely fertile, and it is so abundantly watered by the rills which descend from the mountain-sides, that it yields spontaneously in great profusion all that the peasants who till it desire to produce; so that waving grass, and grain, and flowering shrubs, and fruitful trees, adorn every glen, while the gray rocks which tower precipitously above them, and the cascades and water-falls which descend in every ravine, make the scene as romantic and wild as it is luxuriant and beautiful.

7. The interest of the scene and of the occasion is greatly enhanced in the mind of the visitor, through the strange and romantic mode of traveling by which he reaches the spot. His caravan moves slowly in a long and winding train, now ascending, now descending; sometimes advancing in a smooth and even way, and sometimes crossing and recrossing its own course in a zigzag and precipitous path.

8. When at last the traveler reaches the grove, he finds it to be of great extent, and the principal trees astonish him by their enormous magnitude, and by the ancient and venerable appearance which their trunks assume. Some of the trees are forty feet in circumference and ninety feet high, their trunks being gnarled and twisted, and marked in every way with all the characteristics of the most venerable age. The bark of some of the most conspicuous of

them is inscribed with the names of such of the distinguished travelers that have from time to time visited the spot, as have deemed this a suitable mode of perpetuating the memory of their visit.

9. It seems to have been a point of particular attention with all travelers who have ascended to this part of Lebanon, for the last three hundred years, to count the trees in this celebrated grove, and the discrepancy of the reports which they have brought back on the subject affords a melancholy illustration of the little reliance which is to be placed on travelers' stories. At first they said there were five, then sixteen, then ten, then twenty-five, and so on to fifty, one hundred, five hundred, and finally one thousand. It is true, indeed, that these accounts extend through a period of three hundred years, and in three hundred years, it must be confessed, that there is time for a great many cedars to grow.

10. However it may have been in times past, it is certain that there is now, on the slope of Mount Sunnin, quite an extensive tract of ground covered with the cedar-groves, though still there are among the other trees a certain number of ancient patriarchs, that in age and magnitude infinitely surpass the rest. It is not at all improbable that these older trees may have been growing there for a thousand years; as the period of three hundred years, during which they have been observed and described by the succession of travelers that have visited them, has made no perceptible change in their magnitude or their vigor. And such is the prodigious longevity to which such trees sometimes attain, that it is not impossible that they may continue to stand there for a thousand years to come.

Jacob Abbott.

THE MAELSTROM.

1. On approaching the Loffoden Islands, we had a fair view of the last outposts of the group—the solid barriers against which the utmost fury of the Atlantic dashes in vain. This side of Vaeröe lay the large Island of Mosköe, between which and a large, solitary rock, in the middle of the strait dividing them, is the renowned Maelström—now, alas! almost as mythical as the kraken or great sea-snake of the Norwegian fiords. It is a pity that the geographical illusions of our boyish days can not remain.

2. You learn that the noise of Niagara can be heard one hundred and twenty miles off, and that "some Indians in their canoes have ventured down it with safety." Well, one could give up the Indians without much difficulty; but it is rather discouraging to step out at the Falls depot for the first time and hear no noise except "Cab, sir?" "Hotel, sir?" So with the Maelström, denoted on my schoolboy map by a great spiral twist, which suggested to me a tremendous whirl of the ocean-currents, aided by the information that "vessels can not approach nearer than seven miles." In Olney, moreover, there was a picture of a luckless bark half-way down the vortex. I had been warming my imagination, as we came up the coast, with Campbell's sonorous lines:

> "Round the shores where runic Odin
> Howls his war-song to the gale;
> Round the isles where loud Lafoden
> Whirls to death the roaring whale"—

and, as we looked over the smooth water toward Mosköe, felt a renewed desire to make an excursion thither on our return from the north. But, according to modern authori-

ties which I consulted, the Maelström has lost all its terrors and attractions.

3. Under certain conditions of wind and tide, an eddy is formed in the strait, it is true, which may be dangerous to small boats; but the place is by no means so much dreaded as the Salten Fiord, where the tide, rushing in, is caught in such a manner as to form a *bore*, as in the Bay of Fundy, and frequently proves destructive to the fishing-craft. It is the general opinion that some of the rocks which formerly made the Maelström so terrible have been worn away, or that some submarine convulsion has taken place, which has changed the action of the waters; otherwise, it is impossible to account for the reputation it once possessed.

Bayard Taylor.

PART XI.

WILD ANIMALS.

LION-HUNTING BY GERARD.

1. One black lion will lay waste a whole district. Fonder of blood than of flesh, he will slay four or five times as many cattle as he can eat, drink their blood, eat a few choice morsels from each, and leave the rest to the jackals and hyenas; whence the old stories about his royal profuseness. One of these brutes had been ravaging a fertile district near the camp at which Gérard was stationed; the Arabs sent for the famous lion-killer and implored his aid. He reconnoitered the locality, and, choosing a dark night, stationed himself near the edge of a ford over a mountain-brook, at which the lion usually came to drink.

2. He had scarcely taken his seat upon a stone, when his guide began to tremble and beg him to return to the village, urging that the night was too dark. Gérard gave him leave to return home, but the poor Arab dared not risk the journey; he lay down in a group of lentiscuses in a dreadful agony of fear.

3. The lion had been roaring for some time, and the sound was drawing nearer. Gérard endeavored vainly to discern objects around him. So pitchy dark was the night that, even after closing his eyes for two or three minutes, he could only just make out the course of the stream which

ran at his feet. A moment afterward the lion roared again, apparently at a distance of a hundred yards. With his gun cocked, and his elbow resting on his knee, Gérard watched breathless. Nothing could be seen or heard. A few seconds elapsed; then a low, dull moan on the opposite side of the brook, straight in front of the hunter. A single look, and there in the inky darkness were the two eyes of the lion, burning fiercely, and fixed on Gérard. The hunter confessed that he gasped at the sight, and, though the night was cold, and he had been shivering the moment before, a profuse perspiration covered his forehead. With a single bound from where he was the brute could almost reach his enemy; and that bound made, even victory was sure to cost him his life.

4. Gérard took farewell of the world, and, grasping his gun more firmly than before, put his finger to the trigger; but the lion had taken to the water, and was splashing in the stream. Gérard listened and watched. The splashing ceased; on the hunter's left, close to him, he heard a soft, dull tread in the mud. Suddenly turning, he saw the lion ascending the eminence on which he sat. Useless, then, to look for gun-sights; with head erect, and both eyes open, Gérard fired. By the light of the flash he saw a huge hairy mass roll over; a tremendous roar almost deafened him; the lion was splashing and writhing in the bed of the stream. Every now and then he moaned and growled. It was too dark to risk close quarters; so Gérard went home, promising himself to return next morning for the corpse.

5. By daybreak he was at the spot, but the lion was gone. He could be traced for a short distance by his blood, but the spoor was lost when the brute took to the water. A band of Arab hunters was organized to hunt him down, but for many hours they beat the bush and mountain without success. Toward evening Gérard heard a succession of shouts, and, galloping in the direction

whence they came, saw the Arabs flying like the wind before the lion, who was chasing them on three legs.

6. At sight of him the lion stopped, opened his mouth, and began to lash his sides with his tail. Gérard accepted the challenge, dismounted, and in spite of the entreaties, and even the physical efforts of the frightened Arabs, advanced toward the brute, gun in hand. The lion made off into a thicket. Gérard walked round it cautiously, but could see nothing. He ordered an Arab to throw stones into the lion's hiding-place. The first stone brought him out, and with tail stiff and straight, mane spread out and grinning jaws, he charged the hunter. Gérard sat down on the ground. The Arabs fell to praying, and roaring: "Fire! Why don't you fire?" On came the lion in fine style till within six or eight yards, when he was suddenly brought up by a hard lump of lead, which struck him an inch above his eye. He fell directly, but rose again, rearing on his hind-legs. A second shot straight through his heart put him out of pain.

Harper's Magazine.

LION-HUNTING BY GORDON CUMMING.

1. Though the lion seems to assume it as his natural duty to protect the lioness, she is well able to protect herself. Cumming found the females the most troublesome of the two. He had lost some cattle, and made a shrewd guess as to the identity of the thief, when, in riding out, he fell in with a lioness devouring a blesbok. At sight of the hunters she made for the mountains; but Cumming, being well mounted, gave hot chase, and gained on her rapidly. Being within ear-shot, he shouted to her to stop—that he had something to say to her.

2. She did stop ; would not turn round, but crouched with tail turned to the hunters, as though doubtful whether they were worth looking at. As the sound of the horses' hoofs reached her, she rose, faced about, and began to gnash her teeth and flourish her tail. Cumming and his men dismounted and looked to their priming. This found to be in order, one of the men proceeded calmly to fasten the horses together.

3. The lioness was puzzled. After a few moments' observation she advanced on the hunters slowly. Cumming orders his most trusty man to reserve his fire for her last spring ; kneels, and fires at sixty yards. Though hit in the shoulder, she charges furiously and knocks one of the horses down. "At this moment Stofolus's rifle exploded in his hand, and Kleinboy, whom Cumming had ordered to stand by him, danced about like a duck in a gale of wind." Cumming stood out from the horses, watching for a second shot ; and the lioness seeing him, left the horse and made a dash at him. His rifle was true, and at a few yards the lioness was stretched.

4. When she has her young with her she will never fly. Gérard watched a long time in the woods for a lioness which had committed fearful depredations among the Arabs. He was losing hope of seeing her after several nights' watching, when he saw something move near the body of a horse at the bottom of a valley below him. A single glance satisfied him that it was the lioness with her cub. They played around the carcass a short while ; then the cub began to help himself.

5. At that very moment the mother saw Gérard sitting on a rock above. With a spring like lightning she seized her cub by the back and dashed off with him. They were lost to sight in an instant. Gérard sat a while watching for some sign of their return ; he was beginning to lose hope, and to regret that he had not fired when he first saw

the pair, when he heard a noise in the leaves beside him. It was such a noise, he says, as a mouse would make in running over the leaves. His sportsman's tact revealed what it was ; and, as he looked, two large paws, a pair of long mustaches, and an enormous nose appeared successively to confirm the impression. His gun was on full cock at his shoulder ; the moment he saw the red, glaring eyes he fired, and, at that short distance, the iron slug with which he had loaded his piece was fatal. The lioness had placed her cub in safety, and was coming deliberately to attack the hunter.

Harper's Magazine.

TIGER-HUNTING IN INDIA.

1. In tiger-shooting on foot there appears to be, comparatively speaking, but little danger to any one, if all are kept in a compact body. Lieutenant Rice invariably insisted on the observance of this rule. His hunting procession, as described by himself, presented a singular spectacle. In front, and stooping down beside him, is the head *shikaree*, or chief huntsman, who, by carefully observing each foot-print or slightest drop of blood, points out the direction which the wounded game has gone. Keeping guard over the shikaree, with full-cocked rifles, the lieutenant himself leads the wedge-shaped procession. Immediately behind him follow the best and steadiest men, carrying the spare loaded guns.

2. Then comes the band, consisting of four or five kettle-drums and one big drum, a man ringing a tremendous bell, with perhaps others, either blowing horns, beating cymbals, firing pistols, or doing anything else to make the most horrible din that they can. On either side of the band are men with halberds or formidable-looking spears ;

their duty is to keep the beaters well together while passing through grass that is often high overhead. Last of all come a number of men who are constantly engaged in

The Tiger in its Native Jungle.

throwing large stones, which fall just in front and on all sides of the party, and which will start a wounded tiger when he would not otherwise move from his place of con-

cealment. Generally, however, the noise is sufficient to rouse the animal.

3. Overlooking the whole procession is a man in a tree, which he climbs from time to time in the progress of the march, and keeps a good lookout on all sides for any large game. The whole party moves at a snail's pace, and yell with all their might. No tiger will face such a mass of men and noise. Sometimes one will charge to within a few yards of the procession, but he then invariably turns off, and is wounded or shot dead before he can escape.

4. Bull-buffaloes are rarely killed by tigers. These animals are almost tiger-proof, unless it be some solitary straggler that is attacked. When a buffalo is seized by a tiger all the others immediately hasten to the rescue, and either drive off the tiger or trample and gore him with their hoofs and horns. The men and boys who herd buffaloes are well aware of this; and, fearlessly seated on the backs of the enormous creatures, they do not hesitate to drive them for pasture into any swamp or dense cover, though well aware that tigers are lying in the same spot.

5. It is the habit of buffaloes to lie for hours together in the water, during the intense heat of the Indian summer, soaking and chewing the cud, their eyes and noses alone visible, and their bodies perfectly free from the annoyance of flies. They get rabidly excited on smelling the blood or hearing the roar of a tiger, and, with loud bellowings, will rush into the dense cover, crushing down the bushes on all sides, and madly butting with their horns at everything in their way.

6. Lieutenant Rice's third campaign in tiger-shooting was commenced under unfavorable auspices. A serious and well-nigh fatal accident happened to Mr. Elliott, one of his party. They were beating at the time a ravine in the vicinity of Dowlutpoora, and, to overlook the high grass

around, both Elliott and Rice had mounted a small thorn-tree. Presently a fine tiger appeared, walking straight toward them. As ill luck would have it, a man who had climbed another tree called out at the moment, and the noise alarmed the tiger, who at once stopped, and then, like lightning, bounded off in another direction.

7. Rice and Elliott both fired, and wounded the brute before he escaped, but not very severely, as the distance was too great for an effective shot. They immediately began to follow him up. After making their way through a dense patch of thorn-bushes and high grass, they arrived at an open space, where all traces of the tiger abruptly ceased. The two hunters had advanced a few steps in front of the men to examine the ground more minutely, and while thus engaged they were startled by a loud roar, which proceeded from a small ditch some two or three yards to their right. The roar was instantly followed by the tiger, who was charging down upon the party.

8. Rice had barely time to discharge the contents of both barrels of his rifle into the animal's chest; these shots made him swerve from his course and spring upon Elliott, who had no opportunity to get his weapon ready, and who was irresistibly borne back by the shock. The shikaree quickly handed Lieutenant Rice his spare guns, and he as quickly fired two shots into the beast's shoulder as he stood over Elliott, but the wounds had little effect. The tiger commenced dragging its prey backward by the upper part of his left arm, which it had seized in its jaw.

9. The ground was uneven and covered with broken pieces of rock, and Lieutenant Rice was nervous about firing lest he should hit his friend, whose face was touching the brute's head. Elliott, in the mean time, had fainted. At last, after aiming two or three times in vain, Lieutenant Rice took advantage of a favorable chance that was luckily presented; his ball struck the tiger on the top

of his skull, whereupon it dropped its victim and rolled over dead.

10. Another shot was fired to make certain, and Elliott was then pulled out from under the tiger. He was quite sensible and asked for water, which was at once given him. His arm was frightfully bitten, but beyond this he had suffered no serious injury. When first seized he had narrowly escaped a blow which the tiger had aimed at him with his paw, but which he had fortunately warded off with his uplifted rifle. The stock of the weapon was marked with the animal's claws, and the triggers and guard were completely flattened.

Harper's Magazine.

ELEPHANT-HUNTING IN CEYLON.

1. The elephants of Ceylon are not as extensively engaged in the "ivory-business" as those of Africa. Instead of the long tusks which ornament the latter, the former have merely "grubbers" three or four inches long, which are not considered worth the trouble of extracting. Like most wild beasts in tropical countries they avoid the sun, and feed mainly in the night, spending the hot part of the day in the impenetrable jungle. From this they emerge at about four o'clock in the afternoon, and return by seven in the morning. Their favorite food is the bamboo, lemon-grass, and sedges, growing on the banks of rivers, ponds, and swamps. When these are destroyed by drought in one part of the country, they migrate to another. They are usually seen in herds of eight or ten, though they sometimes form companies much more numerous. The majority of the herd are usually females. The male is larger and more ferocious than the female.

2. Not unfrequently an old bull is found who has made up his mind to "cut" society, and live a solitary life. Such a one is styled by the natives a "rogue," and a sad rogue and rascal he is. Deprived of the ameliorating influences of female companionship, he becomes doubly vicious. He selects some neighborhood for his special haunt, seldom straying to any great distance from it. In course of time he becomes a perfect nuisance, waylays the inhabitants, chases everybody no matter how inoffensive, and breaks into the paddy-fields of the natives, perfectly regardless of their night-fires and watches. He appears to be in bad humor with the world generally, and with himself in particular, spending the greater part of his time, when not actually feeding, in pacing back and forth with his tail cocked in the air, ready for a rush on any one that approaches his haunt.

3. The pluck of these "rogues" is equal to their ferocity, and both are backed up by their wonderful cunning. When they travel in the day-time, they always go by the wind, and such is the keenness of their faculty of smelling that nothing can follow on their track without their knowledge. They will scent a man, in particular, at an immense distance. No matter how noiselessly the hunter may follow on his track, the tainted breeze gives the "rogue" warning of the approach of his foe. He pauses with tail erect, ears flung forward, and trunk in the air, its distended tip pointing in the direction from which the danger approaches. Every faculty is on the alert, every nerve is strained to its utmost tension; but not a movement in the thick jungle denotes his immediate presence to the hunter who is tracking him, and who strives in vain to catch a glimpse of him through the dense underbrush. Whether he be near or remote, the hunter has no means of knowing, and so he creeps nearer and nearer his ambushed foe.

4. Suddenly a crash is heard in the thick jungle, and with a shrill trumpeting the elephant is down upon him in full charge. Woe to the hunter if his aim fail, his nerves tremble, his foot stumble, or his rifle miss fire! In a moment he is crushed out of all semblance of humanity. When the "rogue" is pursued in the open forest or on the naked plain, he usually retreats, but the chances are ten to one that he is merely enticing the hunter to follow him to some favorite haunt, among the dense jungle or the tall grass, from which he will charge at some unexpected moment.

5. One day, in company with a brother hunter B——, and a number of natives to carry guns, I went out to find elephants. We came to a long, narrow pond, with a clayey margin, bordered by a partially impenetrable jungle, where we found thirteen "rogues," all separate except one pair, who appeared to be chums. The natives told us they were a notorious couple, and had long been the terror of the country round. After killing one, the rest made off, and we pursued them along the muddy margin of the pond.

6. We had slipped and plunged and struggled along for some distance, when we were suddenly checked in our advance. We had entered a small plot of deep mud and rank grass, surrounded on all sides by dense rattan jungle. This stuff is one woven mass of hooked thorns; long tendrils armed in the same manner, though not larger than whipcord, wind themselves round the parent canes, and form a jungle which even elephants dislike to enter.

7. Half-way up to our knees in mud, we stood in this small open space of about thirty feet by twenty. Around us was an opaque screen of this impenetrable jungle; the lake lay about fifty yards upon our left, behind the thick rattan. The gun-bearers had gone ahead somewhere, and were far in advance. We were at a stand-still. Leaning upon my long rifle, I stood within four feet of the wall of

the jungle which divided us from the lake. I said to B——: "The trackers are all wrong, and have gone too far. I am convinced that the elephants must have entered somewhere near this place." Little did I think that at that very moment they were within a few feet of us. B—— was standing behind me on the opposite side of the small opening, about seven yards from the jungle. I suddenly heard a deep guttural sound in the thick rattan within four feet of me; and at the same instant the whole tangled fabric bent over me, and, bursting aside, showed the furious head of an elephant, with uplifted trunk, in full charge upon me.

8. I had barely time to cock my rifle, and the barrel almost touched him as I fired. I knew it was in vain, as his trunk was raised, so that the bullet could not touch his brain. B—— fired his right-hand barrel at the same moment, without effect, from the same cause. I jumped on one side, and attempted to spring through the deep mud. It was of no use; the long grass entangled my feet, and in another instant I lay sprawling in the enraged elephant's path, within a single foot of him. In that moment of suspense I expected to hear the crack of my own bones as his massive foot would be upon me. I heard the crack of B——'s last barrel, I felt a spongy weight strike my heel, and, turning quickly heels over head, I rolled a few paces and regained my feet. The last shot had floored him just as he was upon me. The end of his trunk had fallen upon my heel. Still he was not dead, but he struck at me with his trunk as I passed round his head to give him a finisher with the four-ounce rifle which I had snatched from our solitary gun-bearer.

9. My back was touching the jungle from which the rogue had just charged, and I was almost in the act of firing through the temple of the still struggling elephant, when I heard a tremendous crash in the jungle directly upon me. I threw my whole weight back against the thick

rattans to avoid him, and the next moment his foot was planted within an inch of mine. His lofty head was passing over me in full charge at B——, who was unloaded, when, holding the four-ounce rifle perpendicularly, I fired exactly under his throat. I thought he would fall upon me and crush me, but this shot was my only chance, as B—— was perfectly helpless.

10. A dense cloud of smoke from the heavy charge of powder for the moment obscured everything. I had jumped out of the way the instant after firing. The elephant did not fall; but he had his death-wound. The ball had severed his jugular, and the blood poured from the wound. He stopped, but, collecting his stunned energies, he stumbled forward toward B——. He, however, avoided him by running to one side, and the wounded brute staggered on through the jungle. We then loaded the guns. The first "rogue" was now quite dead, and we followed on in pursuit of "rogue" number two. We heard distant shots, and upon arriving at the spot we found the gun-bearers. They had heard the wounded elephant crashing through the jungle, and had given him a volley just as he was crossing the water over which the herd had previously escaped. They described him as perfectly helpless from his wound, and they imagined that he had fallen in the thick bushes on the opposite bank. We had then no means of crossing, but in a few days the elephant was found lying dead on the spot where they supposed he had crossed.

HUNTING THE OSTRICH.

1. With the Arabs of the desert, the chase of the ostrich is the most attractive and eagerly sought of the many aristocratic diversions in which they indulge. The first point

attended to is a special preparation of their horses. Seven or eight days before the intended hunt they are entirely deprived of straw and grass, and fed on barley only. They are only allowed to drink once a day, and that at sunset—the time when the water begins to freshen; at that time also they are washed. They take long daily exercises, and are occasionally galloped, at which time care is taken that the harness is right, and suited to the chase of the ostrich. "After seven or eight days," says the Arab, "the stomach of the horse disappears, while the chest, the breast, and the croup remain in flesh; the animal is then fitted to endure fatigue."

2. The harness used for the purpose in question is lighter than ordinary, especially the stirrups and saddle, and the martingale is removed. The bridle, too, undergoes many metamorphoses; the mountings and the ear-flaps are taken away, as too heavy. The bit is made of a camel-rope, without a throat-band, and the frontlet is also of cord, and the reins though strong are very light. The period most favorable for ostrich-hunting is that of the great heat; the higher the temperature the less is the ostrich able to defend himself. The Arabs describe the precise time as that, when a man stands upright, his shadow has the length only of the sole of his foot.

3. Each horseman is accompanied by a servant, mounted on a camel, carrying four goat-skins filled with water, barley for the horse, wheat-flour for the rider, some dates, a kettle to cook the food, and everything which can possibly be required for the repair of the harness. The horseman contents himself with linen vest and trousers, and covers his neck and ears with a light material tied with a strip of camel's hide; his feet are protected with sandals, and his legs with light gaiters. He is armed with neither gun nor pistol, his only weapon being a wild-olive or tamarind stick, five or six feet long, with a heavy knot at one end.

4. The hunters start in the morning. After one or two days' journey, when they have arrived near the spot pointed out, and they begin to perceive traces of their game, they halt and camp. The next day two intelligent slaves, almost entirely stripped, are sent to reconnoiter; they each carry a goat-skin at their side, and a little bread; they walk until they meet with the ostriches, which are generally found in elevated places. As soon as the game is in view one lies down to watch, the other returns to convey the information. The ostriches are found in troops comprising sometimes as many as sixty, but at the pairing-time they are more scattered, three or four couples remaining together.

5. The horsemen, guided by the scout, travel gently toward the birds; the nearer they approach the greater is their caution, and, when they reach the last ridge which conceals them from the view of their game, they dismount, and two creep forward to ascertain if they are still there. Should such be the case, a moderate quantity of water is given to the horses, the baggage is left, and each man mounts, carrying at his side a goat-skin. The servants and camels follow the track of the horsemen, carrying with them only a little corn and water.

6. The exact position of the ostriches being known, the plans are arranged; the horsemen divide and form a circle round the game at such a distance as not to be seen. The servants wait where the horsemen have separated, and as soon as they see them at their posts they walk right before them; the ostriches fly, but are met by the hunters, who do nothing at first but drive them back into the circle; thus their strength is exhausted by being made to continually run round the ring.

7. At the first signs of fatigue in the birds, the horsemen dash in—presently the flock separates; the exhausted birds are seen to open their wings, which is a sign of great

exhaustion ; the horsemen, certain of their prey, now repress their horses ; each hunter selects his ostrich, runs it down, and finishes it by a blow on the head with the stick above mentioned. The moment the bird falls the man jumps off his horse and cuts her throat, taking care to hold the neck at such a distance as not to soil the plumage of the wings. The male bird, while dying, utters loud moans, but the female dies in silence.

8. To have the stomach of an ostrich has become proverbial, and with good reason ; for this bird stands enviably forward in respect to its wonderful powers of digestion, which are scarcely inferior to its voracity. Its natural food consists of vegetable substances, especially grain ; and the ostrich is a most destructive enemy to the crops of African farmers. But its sense of taste is so obtuse that scraps of leather, old nails, bits of tin, buttons, keys, coins, and pebbles are devoured with equal relish—in fact, nothing comes amiss. But in this it doubtless follows an instinct, for these hard bodies assist, like the gravel in the crops of our domestic poultry, in grinding down and preparing for digestion ordinary food.

THE GORILLA.

1. As we were cautiously making our way through the jungle, suddenly the guide uttered a little *cluck* with his tongue, which is the native's way of showing that something is stirring, and that a sharp lookout is necessary. And presently I noticed, ahead of us seemingly, a noise as of some one breaking down branches or twigs of trees.

2. This was the gorilla, I knew at once, by the eager and satisfied looks of the men. They looked once more carefully at their guns, to see if by any chance the powder

had fallen out of the pans; I also examined mine, to make sure that all was right, and then we marched on cautiously.

3. The singular noise of the breaking of tree-branches continued. We walked with the greatest care, making no noise at all. The countenances of the men showed that they thought themselves engaged in a very serious undertaking; but we pushed on, until we thought we saw through the thick woods the moving of the branches and small trees which the great beast was tearing down, probably to get from them the berries and fruits he lives on.

4. Suddenly, as we were yet creeping along, in silence which made a heavy breath seem loud and distinct, the woods were filled with the tremendous barking roar of the gorilla.

5. Then the underbrush swayed rapidly just ahead, and presently before us stood an immense male gorilla. He had gone through the jungle on his all-fours; but when he saw our party he erected himself and looked us boldly in the face. He stood about a dozen yards from us, and was a sight I think never to forget. Nearly six feet high, with immense body, huge chest, and great muscular arms, with fiercely glaring, large, deep-gray eyes, and a malignant expression of face, which seemed to me like some nightmare vision; thus stood before us the king of the African forests.

6. He was not afraid of us. He stood there, and beat his breast with his huge fists till it resounded like an immense bass-drum, which is their mode of offering defiance; meantime giving vent to roar after roar.

7. The roar of the gorilla is the most singular and awful noise heard in these African woods. It begins with a sharp *bark* like an angry dog, then glides into a deep bass *roll*, which literally and closely resembles the roll of distant thunder along the sky, for which I have sometimes been

tempted to take it when I did not see the animal. So deep is it that it seems to proceed less from the mouth and throat than from the deep chest and vast abdomen.

8. His eyes began to flash fiercer fire as we stood motionless on the defensive, and the crest of short hair on his forehead began to twitch rapidly up and down, while his powerful fangs were shown as he again sent forth a thunderous roar. And now truly he reminded me of nothing but some terrible dream-creature—a being of that hideous order, half man half beast, which we find pictured by old artists in some representations of the infernal regions. He advanced a few steps, then stopped to utter that hideous roar again; advanced again, and finally stopped when at a distance of about six yards from us. And here, as he began another of his roars and beating his breast in rage, we fired and killed him.

9. With a groan, which had something terribly human in it, and yet was full of brutishness, it fell forward on its face. The body shook convulsively for a few minutes, the limbs moved about in a struggling way, and then all was quiet; death had done its work, and I had leisure to examine the huge body. It proved to be five feet eight inches high, and the muscular development of the arms and breast showed what immense strength it possessed.

Du Chaillu.

PART XII.

NATIONAL CHARACTERISTICS.

RURAL LIFE IN SWEDEN.

1. THERE is something patriarchal still lingering about rural life in Sweden, which renders it a fit theme for song. Almost primeval simplicity reigns over that northern land, almost primeval solitude and stillness. You pass out from the gate of the city, and, as if by magic, the scene changes to a wild woodland landscape. Around you are forests of fir. Overhead hang the long, fan-like branches, trailing with moss, and heavy with red and blue cones. Under foot is a carpet of yellow leaves; and the air is warm and balmy. On a wooden bridge you cross a little silver stream; and anon come forth into a pleasant and sunny land of farms. Wooden fences divide the adjoining fields. Across the road are gates which are opened by troops of children.

2. The peasants take off their hats as you pass; you sneeze, and they cry, "God bless you!" The houses in the villages and smallest towns are all built of hewed timber, and for the most part painted red. The floors of the taverns are strewed with the fragrant tips of fir-boughs. In many villages there are no taverns, and the peasants take turns in receiving travelers. The thrifty housewife shows you into the best chamber, the walls of which are hung round with rude pictures from the Bible; and brings you

her heavy silver spoons—an heirloom—to dip the curdled milk from the pan. You have oaten cakes, baked some months before; or bread with anise-seed and coriander in it, or perhaps a little pine-bark.

3. Meanwhile the sturdy husband has brought his horses from the plow and harnessed them to your carriage. Solitary travelers come and go in uncouth one-horse chaises. Most of them have pipes in their mouths, and hanging around their necks in front a leather wallet, in which they carry tobacco, and the great bank-notes of the country as large as your two hands. You meet, also, groups of Dalecarlian peasant-women, traveling homeward or townward in pursuit of work. They walk barefoot, carrying in their hands their shoes, which have high heels under the hollow of the foot, and soles of birch-bark.

4. Frequent, too, are the village churches, standing by the road-side, each in its own little garden of Gethsemane. In the parish register great events are doubtless recorded. Some old king was christened or buried in that church; and a little sexton, with a rusty key, shows you the baptismal font, or the coffin. In the church-yard are a few flowers, and much green grass; and daily the shadow of the church-spire, with its long, tapering finger, counts the tombs, representing a dial-plate of human life, on which the hours and minutes are the graves of men.

5. The stones are flat and large and low, and perhaps sunken, like the roofs of old houses. On some are armorial bearings; on others only the initials of the poor tenants, with a date, as on the Dutch cottages. They all sleep with their heads to the westward. Each held a lighted taper in his hand when he died; and in his coffin were placed his little heart-treasures, and a piece of money for his last journey. Babes that came lifeless into the world were carried in the arms of gray-haired old men to the only cradle they ever slept in; and in the shroud of the dead mother

were laid the little garments of the child that lived and died in her bosom. And over this scene the village pastor looks from his window in the stillness of midnight, and says in his heart, "How quietly they rest, all the departed!"

6. Near the church-yard stands a poor-box, fastened to a post by iron bands, and secured by a padlock, with a sloping wooden roof to keep off the rain. If it be Sunday the peasants sit on the church-steps and con their psalm-books. Others are coming down the road with their beloved pastor, who talks to them of holy things from beneath his broad-brimmed hat. He speaks of fields and harvests, and of the parable of the sower that went forth to sow. He leads them to the Good Shepherd, and to the pleasant pastures of the spirit-land. He is their patriarch, and like Melchizedek, both priest and king, though he has no other throne than the church-pulpit. The women carry psalm-books in their hands, wrapped in silk handkerchiefs, and listen devoutly to the good man's words. But the young men, like Gallio, care for none of these things. They are busy counting the plaits in the kirtles of the peasant-girls, their number an indication of the wearer's wealth.

7. Nor must I forget the suddenly changing seasons of the northern clime. There is no long and lingering spring, unfolding leaf and blossom, one by one; no long and lingering autumn, pompous with many-colored leaves and the glow of Indian summers. But winter and summer are wonderful, and pass into each other. The quail has hardly ceased piping in the corn, when winter from the folds of trailing clouds sows broadcast over the land snow, icicles, and rattling hail. The days wane apace. Ere long the sun hardly rises above the horizon, or does not rise at all. The moon and the stars shine through the day; only, at noon, they are pale and wan, and in the southern sky a red, fiery glow, as of sunset, burns along the horizon, and

then goes out. And pleasantly under the silver moon, and under the silent, solemn stars, ring the shoes of the skaters on the frozen sea, and voices and the sound of bells.

8. And now the northern lights begin to burn, faintly at first, like sunbeams playing in the waters of the blue sea. Then a soft crimson glow tinges the heavens. There is a blush on the cheek of night. The colors come and go; and change from crimson to gold, from gold to crimson. The snow is stained with rosy light. Twofold from the zenith, east and west, flames a fiery sword; and a broad band passes athwart the heavens, like a summer sunset. Soft purple clouds come sailing over the sea, and through their vapory folds the winking stars shine as white as silver.

9. With such pomp as this is merry Christmas ushered in, though only a single star heralded the first Christmas. And in memory of that day the Swedish peasants dance on straw; and the peasant-girls throw straws at the timbered roof of the hall, and for every one that sticks in a crack shall a groomsman come to their wedding. Merry Christmas indeed! For pious souls there shall be church songs and sermons, but, for Swedish peasants, brandy and nut-brown ale in wooden bowls; and the great Yule-cake crowned with a cheese, and garlanded with apples, and upholding a three-armed candlestick over the Christmas feast.

10. And now the glad, leafy midsummer, full of blossoms and the song of nightingales, is come! Saint John has taken the flowers and festival of heathen Balder; and in every village there is a May-pole fifty feet high, with wreaths and roses and ribbons streaming in the wind, and a noisy weather-cock on top, to tell the village whence the wind cometh and whither it goeth. The sun does not set till ten o'clock at night; and the children are at play in the streets an hour later. The windows and doors are all

open, and you may sit and read till midnight without a candle.

11. Oh, how beautiful is the summer night, which is not yet night, but a sunless yet unclouded day, descending upon earth with dews, and shadows, and refreshing coolness! How beautiful the long, mild twilight, which like a silver clasp unites to-day with yesterday! How beautiful the silent hour, when morning and evening thus sit together, hand in hand, beneath the starless sky of midnight!

12. From the church-tower in the public square the bell tolls the hour, with a soft, musical chime; and the watchman whose watch-tower is the belfry, blows a blast in his horn, for each stroke of the hammer, and four times, to the four corners of the heavens, in a sonorous voice he chants:

"Ho! watchman, ho!
Twelve is the clock!
God keep our town
From fire and brand
And hostile hand!
Twelve is the clock!"

From his swallow's nest in the belfry he can see the sun all day long; and farther north the priest stands at his door in the warm midnight, and lights his pipe with a common burning-glass.

Longfellow.

ASIRVADAM THE BRAHMAN.

1. THE natural history of our astute and accomplished friend is worth a page or two. And first, as to his color. Asirvadam comes from the northern provinces, and calls the snow-turbaned Himalayas cousin; consequently, his

complexion is the brightest among Brahmans. By some who are uninitiated in the chemical mysteries of our metropolitan milk-trade, it has been likened to chocolate and cream, with plenty of cream; but the comparison depends, for the idea it conveys, so much on the taste of the ethnological inquirer, as to the proportion of cream, and still so much more, as in the case of Mr. Weller's weal-pies, on the reputation of "the lady as makes it," that it will hardly serve the requirements of a severe scientific statement.

2. Simplicity, convenience, decorum, and picturesqueness distinguish the costume of Asirvadam the Brahman. Three yards of yard-wide fine cotton cloth envelop his loins in such a manner that, while one end hangs in graceful folds in front, the other falls in a fine distraction behind. Over this, a robe of muslin, or silk, or piña cloth—the latter in peculiar favor, by reason of its superior purity, for high-caste wear—covers his neck, breast, and arms, and descends nearly to his ankles. Asirvadam borrowed this garment from the Mussulman; but he fastens it on the left side, which the follower of the Prophet never does, and surmounts it with an ample and elegant waistband, besides the broad Romanesque mantle that he tosses over his shoulder with such a senatorial air.

3. His turban, also, is an innovation—not proper to the Brahman, pure and simple, but, like the robe adopted from the Moorish wardrobe, for a more imposing appearance in Sahib society. It is formed of a very narrow strip, fifteen or twenty yards long, of fine stuff, molded to the orthodox shape and size by wrapping it, while wet, on a wooden block; having been hardened in the sun, it is worn like a hat. As for his feet, Asirvadam, uncompromising in externals, disdains to pollute them with the touch of leather. Shameless fellows, Brahmans though they be, of the sect of Vishnu, go about, without a blush, in thonged sandals,

made of abominable skins; but Asirvadam, strict as a Gooroo when the eyes of his caste are on him, is immaculate in wooden clogs.

4. In ornaments, his taste, though somewhat grotesque, is by no means lavish. A sort of stud or button, composed of a solitary ruby, in the upper rim of the cartilage of either ear—a chain of gold, curiously wrought, and intertwined with a string of small pearls, around his neck—a massive bangle of plain gold on his arm—a richly jeweled ring on his thumb, and others, broad and shield-like, on his toes, complete his outfit in these vanities.

5. As often as Asirvadam honors us with his morning visit of business or ceremony, a slight yellow line, drawn horizontally between his eyebrows, with a paste composed of ground sandal-wood, denotes that he has purified himself externally and internally by bathing and prayers. To omit this, even by the most unavoidable chance to appear in public without it, were to incur a grave public scandal; only excepting the season of mourning, when, by an expressive Oriental figure, the absence of the caste-mark is accepted for the token of a profound and absorbing sorrow, which takes no thought even for the customary forms of decency.

6. The low-caste slave who may be admitted to the distinguished presence of our friend, to implore indulgence, or to supplicate pardon for an offense, must thrice touch the ground, or the honored feet, with both his hands, which he immediately lays upon his forehead; and there are occasions of peculiar humiliation which require the profound prostration of the *sashtangam*, or abasement of the eight members, wherein the suppliant extends himself face downward on the earth, with palms joined above his head.

7. If Asirvadam—having concluded a visit in which he has deferentially reminded me of the peculiar privilege I enjoy in being admitted to social converse with so select a being—is about to withdraw the light of his presence, he

retires backward, with many humbly gracious salaams. If, on the other hand, I have had the honor to be his distinguished guest at his garden-house, and am in the act of taking my leave, he patronizes me to the gate with elaborate obsequiousness, that would be tedious, if it were not so graceful, so comfortable, so gallantly vainglorious. He shows the way by following, and spares me the indignity of seeing his back by never taking his eyes from mine. He knows what is due to his accomplished friend the Sahib, who is learned in the four Yankee Vedas; as to what is due to Asirvadam the Brahman, no man knoweth the beginning or the end of that.

8. When Asirvadam crosses my threshold, he leaves his slippers at the door. I am flattered by the act into a self-appreciative complacency, until I discover that he thereby simply puts me on a level with his cow. When he converses with me, he keeps respectful distance, and gracefully averts from me the annoyance of his breath by holding his hand before his mouth. I inwardly applaud his refined breeding, forgetting that I am a pariah of pariahs, whose soul, if I have one, the incense of his holy lungs might save alive—forgetting that he is one to whose very foot-print the Soodra salaams, alighting from his palankeen—to whose shadow poor Chakili, the cobbler, abandons the broad highway—the feared of gods, hated of giants, mistrusted of men, and adored of himself—Asirvadam the Brahman.

9. Among the cloistral cells of the women's quarter, which surround the inner court of Asirvadam's domestic establishment, is a dark and narrow chamber which is the domain of women's rights. It is called "the Room of Anger," because, when the wife of the bosom has been tempted by inveighing *box-wallahs* with a love of a pink *coortee*, or a pair of chased bangles, "such darlings and *so* cheap," and has conceived a longing for the same, her way is, without a word beforehand, to go shut herself up in the

Room of Anger, and pout and sulk till she gets them ; and seeing that the wife of the bosom is also the pure concocter of the Brahmanical curry and server of the Brahmanical rice, that she is the goddess of the sacred kitchen, and high-priestess of pots and pans, it is easy to see that her success is certain. Poor little brown fool ! that twelve feet square of curious custom is all, of the world-wide realm of beauty and caprice, that she can call her own.

10. As Raja, the warrior, sprang from the right arm of Brahma, and Vaishya, the cultivator, from his belly, and Soodra, the laborer, from his feet ; so Asirvadam the Brahman was conceived in the head and brought forth from the mouth of the Creator ; and he is above the others by so much as the head is above arms, belly, and feet ; he is wiser than the others, inasmuch as he has lain among the thoughts of the god, has played with his inventions, and made excursions through the universe of speech. Therefore, if it be true, as some say, that Asirvadam is an ant-hill of lies, he is also a snake's-nest of wisdom, and a bee-hive of ingenuity. Let him be respected, for his rights are plain.

11. It is right to be taught the Vedas and the mantras, all the tongues of India, and the sciences ; to marry a child-wife—no matter how old he may be—or a score of wives, if he be a Kooleen Brahman, so that he may drive a lively business in the way of dowries ; to peruse the books of magic, and perform the awful sacrifice of the Yajna ; to receive presents without limit, levy taxes without law, and beg with insolence.

12. Asirvadam has a choice of a hundred callings, as various in dignity and profit as they are numerous. Under native rule he makes a good cooly, because the officers of the revenue are forbidden to search a Brahman's baggage, or anything that he carries. He is an expeditious messenger, for no man may stop him ; and he can travel cheaply for whom there is free entertainment on every road. Asirva-

dam, in financial straits, may teach dancing to nautch-girls; or he may play the mountebank or the conjurer, and with a stock of mantras and charms proceed to the curing of murrain in cattle, pip in chickens, at the same time telling fortunes, calculating nativities, finding lost treasure, advising as to journeys and speculations, and crossing out crosses in love for any pretty dear who will cross the poor Brahman's palm with a rupee. He may engage in commercial pursuits; and, in that case, his bulling and bearing at the opium-sales will put Wall Street to the blush.

13. The field of politics is full of charms for him, the church invites his taste and talents, and the army tempts him with opportunities for intrigue; but whether in the shape of Machiavelisms, miracles, or mutinies, he is for ever making mischief.

14. Whether as messenger, dancing-master, conjurer, fortune-teller, speculator, mountebank, politician, priest, or Sepoy, he is ever the same Asirvadam the Brahman—sleekest of lackeys, most servile of sycophants, expertest of tricksters, smoothest of hypocrites, coolest of liars, most insolent of beggars, most versatile of adventurers, most inventive of charlatans, most restless of schemers, most insidious of Jesuits, most treacherous of confidants, falsest of friends, hardest of masters, most arrogant of patrons, cruelest of tyrants, most patient of haters, most insatiable of avengers, most gluttonous of ravishers, most infernal of devils—pleasantest of fellows.

Atlantic Monthly.

CHILD-LIFE BY THE GANGES.

1. We are told that there are towns in India, somewhere between Cape Comorin and the Himalayas, wherein everything is "little"; where inhabitants and inhabited are alike in the estate of urchins; where little Brahmans extort little

offerings from little dupes at the foot of little altars, and ring little bells, and blow little horns, and pound little gongs, and mutter little rigmaroles before stupid little Krishnas and Sivas and Vishnus, doing their little wooden best to look solemn, mounted on little bulls or snakes, under little canopies ; where little Brahmanee bulls, in all the little insolence of their little sacred privileges, poke their little noses into the little rice-baskets of pious little maidens in little bazaars, and help their little selves to their little hearts' content, without "begging your little pardons," or "by your little leaves" ; where dirty little fakirs and yogees hold their dirty little heads until their dirty little muscles are shrunk to dirty little rags, and their dirty little finger-nails grow through the backs of their dirty little hands, or wear little tenpenny nails thrust through their little tongues till they acquire chronic impediments in their decidedly dirty little speech, or, by means of little hooks through the little smalls-of-their-backs, circumgyrate from little churruck-posts for the edification of infatuated little crowds and the honor of horrid little goddesses ; where plucky little widows perform their little suttees for defunct little husbands, grilling on little funeral piles ; where mangy little pariah dogs defile the little dinners of high-caste folks, by stealing hungry little sniffs from sacred little pots ; where omnivorous little adjutant-birds gobble up little glass bottles and bones, and little dead cats, and little old slippers, and bits of little bricks, in front of little shops in little bazaars ; where vociferous little servants are driving little bargains with obese little merchants, and consequential little policemen are bullying offensive little poor people and calling them pigs ; where, in fine, everything in heathen human nature happens to children, and the very fables with which the little story-tellers entertain the little loafers on the corners of the little streets are full of *little* giants and *little* dwarfs.

2. But, while in fable this paradise for children exists, in reality, many and grievous perils do environ baby-life by the Ganges—perils of nurses, perils by wolves, perils by crocodiles, perils by cobras, perils by devils.

3. Some fine afternoon your *ayah*, or nurse, takes your little Johnny to stroll by the river's bank, to watch the green budgerows as they glide, pulled by singing boatmen; to watch the brown corpses as they float silently down from Benares. At night the ayah returns wringing her hands. Where is your merry darling? She knows not. *O Khoda-bund!* go ask the evil spirits. O Sahib! go cry unto Gunga, go accuse the greedy river, and say to the envious waters, "Give me back my boy!" She had left him sitting on a stone, she says, counting the sailing corpses, while she went to find him a blue-jay's nest among the rocks; when she returned to the stone, no Johnnee Sahib! "My golden image, who hath snatched him away? He that skipped and hummed like a singing-top, where is he gone?" A month after that your dandees capture a crocodile, and from his heathen maw recover a familiar coral necklace with an inscription on the clasp, "To Johnny on his birthday." A pair of little silver bangles, whose jocund jingling had once been happy household music to some poor Hindoo mother, have kept the necklace company.

4. Over against the gates of our compound the Baboo's walks are bright with roses, and ixoras, and the creeping nagatallis; the Baboo's park is shady with banians, and fragrant with sandal-trees, and imposing with tall peepuls, and cool with sparkling fountains; and Chinna Tumbe, the little brother, the brown apple of the Baboo's eye, plays among the bamboos by the tank, just within the gate, and pelts the gold-fishes with mango-seeds. Presently comes along a pleasant peddler, all the way from Cabool, with a pretty bushy-tailed kitten of Persia in the hollow of his arm, and a cunning little mongoose cracking nuts on his shoulder.

5. A score of tiny silver bells tinkle from a silken cord around Chinna Tumbe's loins, and the silver whistle with which he calls his cockatoos is suspended from his neck by a chain of gold. So the pleasant peddler, all the way from Cabool, greets Chinna Tumbe merrily, saying: "See my pretty kitten, that knows a hundred tricks! and see my brave mongoose, that can kill cobras in fair fight. My Persian kitten for your silver bells, Chinna Tumbe, and my cunning mongoose for your golden chain!"

6. And Chinna Tumbe laughs, and claps his hands, and dances for delight, and all the silver bells jingle merrily. And the pleasant peddler, all the way from Cabool, says: "Step without the gate, little brother, if you would see my pretty kitten play tricks; if you would stroke my cunning mongoose, step without the gate; for I dare not pass within, lest my lord, the Baboo of many lacs, should be angry." So Chinna Tumbe steps out into the road, and the pleasant peddler, all the way from Cabool, sets the Persian kitten on the ground, and rattles off some strange words, that sound very funnily to the little brother; and immediately the Persian kitten begins to run round after its bushy tail, faster and faster, faster and faster, a ring of yellow light.

7. And Chinna Tumbe claps his hands, and cries, "Wah! wah!" and he dances for delight, and all his silver bells jingle gleefully. So the pleasant peddler addresses other strange and funny words to the ring of yellow light, and instantly it stands still, and quivers its bushy tail, and pants. Then the peddler speaks to the cunning mongoose, which immediately leaps to the ground, and sitting quite erect, with its broad tail curled over its back, like a marabout feather, holds its paws together in the quaint manner of a squirrel, and looks attentive.

8. More of the peddler's funny conjuration and up springs the mongoose into the air, like a Burman's wicker

foot-ball, and, alighting on the kitten's back, clings close and fast. Away fly kitten and mongoose—away from the gate—away from the Baboo's walks, bright with exoras and creeping nagatallis, away from the Baboo's park, shady with banians, and fragrant with sandal-trees, and imposing with tall peepuls, and cool with sparkling fountains—away from the Baboo's home, away from the Baboo's heart, bereft thenceforth for ever!

9. For Chinna Tumbe follows fast, crying "Wah! wah!" and clapping his hands, and jingling gleefully all his silver bells, follows across the road, and through the bamboo hedge, and into the darkness of the jungle; and the pleasant peddler, all the way from Cabool, goes smiling after—but, as he goes, what is it that he draws from the breast of his dusty *coortee?* Only a slender, smooth cord, with a slip-knot at the end of it.

10. Within the twelvemonth, in a stony nullah, hard by a clump of crooked saul-trees, a mile from the Baboo's gate, some jackals brought to light the bones of a little child; and the deep grave from which they dug them with their sharp, busy claws bore marks of the mystic pickaxe of Thuggee. But there were no tinkling bells, no chain of gold, no silver whistle; and the cockatoos and the gold-fishes knew Chinna Tumbe no more.

Atlantic Monthly.

JAPANESE SCENERY.

1. Ascending a high hill, just beyond the town of Kanagawa, we enjoyed our first interior view of Japanese rural scenery. Thenceforward we had a path only five or six feet wide, which winds across the plains and around the hill-sides, not on any principle of road-making, but

simply for the convenient use of the soil. The hill-tops are covered with majestic cypresses and yew-trees, intermingled with the chestnut, holly, pine, persimmon, and camphor. At their bases are thick groves of the slender bamboo, which, besides being highly ornamental, is the most variously useful of all the woods in the East.

2. The althea, the lily, the japonica, the arbor-vitæ, the wistaria, the passion-flower, and many other shrubs and creepers, which require so much care and labor in our gar-

A Japanese Temple.

dens and greenhouses, are luxuriant here. There is no waste, either by rock, marsh, or jungle; every hill is terraced, every acre irrigated, every square foot of land covered by some tree, cereal, or esculent. Instead of farms, there are small plots, and each is tilled with cotton, flax,

wheat, barley, sugar, beets, peppers, sweet-potatoes, cabbages, turnips, and other vegetables, by a single family, with care equal to that which is bestowed on our flower-beds. No allowance is made for even accidental waste of the crop. The individual wheat-stalk which is bent down by the storm is restored and supported. Each head of rice, each particular ball of cotton, is kept in its place until carefully removed by the husbandman's hand. There is no loss of time in gathering the crops into garners; as fast as the product ripens, it is harvested and immediately prepared for the market. Despotism, though often cruel, is not always blind. A law of the empire obliges every one who fells a tree to plant another. In the midst of this rich and beautiful landscape, within an inclosure of two hundred acres, stands a Buddhist temple, with an adjoining monastery surrounded by groves such as Downing might have designed. We came upon the base of the temple by successive flights of steps, each reaching from a platform below to a more contracted one above. The edifices are constructed of wood, which is generally used in Japan, for a greater security against earthquakes.

3. While we were enjoying our collation in one apartment, the bonzes were taking tea and smoking in the next one. Each bonze, before lifting his tea-cup or bringing his pipe to his lips, brought his head half a dozen times to the floor by way of compliment to his several companions. We inferred that some of the party were pilgrims, enjoying the hospitalities of the house. The temple is a square inclosure, with an open corridor on every side. Nearly the whole floor is covered with a dais, in the center of which is a large altar, with a smaller one on either side. Over each a carved image—the middle one Buddha; on his right, the mythological mikado, on the left an apostle or lawgiver. No space is allowed for worshipers. They prostrate themselves at the porch, and are content with throwing small

coins into the treasury just within the door. A cemetery near the temple is crowded with monuments of pilgrim princes and saints. Take away from this temple its pagan devices and emblems, and the whole place would seem to be pervaded with the very spirit of religious devotion. It combines seclusion, repose, and silence, with solemnity.

Seward's Travels.

PART XIII.

PECULIAR CUSTOMS.

BUDDHIST TEMPLE AND WORSHIP.

1. By way of specimen-life in the Himalayas, let us look at one of the villages of the mountains. It shall be that of Wallanchoon, in the kingdom of Nepaul. It stands ten thousand feet, and more, above the level of the sea—say, half a mile above the convent of St. Bernard. The few trees which find rooting upon the steep mountain-sides look gaunt and haggard; long streamers of lichen, bleached by exposure to the sun and wind, float from the naked branches. The village lies in a plain, sown over with huge bowlders, that have from age to age been loosened from the heights around. The houses creep up the mountain-side. They are gayly painted and ornamented with poles, from which streamers float in the sharp mountain breeze.

2. The buildings are formed of pine-planks set upright, the interstices being filled with compost. The roofs are low-pitched, covered with shingles, and loaded with large stones, to keep them from blowing away. A narrow slit, closed with a shutter, answers the purpose of a window.

3. High above the level of the dwellings, a long, low convent-building sits perched. Few things are more noticeable than the frequency of temples and monasteries all through the mountains. The principal establishment is at

Tassiding, upon a spur which shoots down from the flanks of Kintchin-Junga. Here are three temples, with corresponding houses for the lamas. They are singular-looking structures, built of huge stones, the walls sloping upward from their base upon the outside, though they are perpendicular within. The roof is low and thickly thatched, projecting eight or ten feet beyond the walls. A ladder upon the outside gives access to a small garret under the roof, inhabited by the attendant monks. Passing through the outer door, we enter a vestibule in which are tall praying-machines, which are kept continually turning, and the amount of prayer and supplication thus ground out is astonishing. From this vestibule the main body of the temple is entered by folding-doors, studded with copper bosses. The walls are plastered over with clay, upon which are depicted allegorical representations of Buddha and various other figures.

4. It must be borne in mind that, properly speaking, the Buddhists are not idolaters. The images are not idols; they are objects of reverence, not of adoration. In theory at least no image is any more than the symbol of the being in whose honor it is erected—a token to remind the worshipers of the holy person to whom alone the adoration is given.

5. The sacred implements in these temples are curious enough. First in importance is the *mani*, or praying-machine. It is a cylinder of leather, of any size up to that of a large barrel, or even hogshead, placed vertically upon an axis, so that it may revolve with facility. Written prayers are deposited within this cylinder, which is made to revolve by pulling a string attached to a crank. An iron arm projecting from the side of the cylinder strikes a small bell at each revolution, and any one who pulls the string properly is supposed to have repeated all the prayers contained in the cylinder at every stroke of the bell. Some of these

machines are put in motion by water-power, and thus turn out an amount of supplication too great to be easily estimated. There is another kind borne in the hand, which can be made to revolve by a very slight movement of the owner.

6. The implement next in importance to the *mani* is the trumpet, made of a human thigh-bone, perforated through both condyles. These are often handsomely mounted and decorated with silver. There is some peculiar sanctity attached to the bone of a lama which is held to give a special efficacy to the trumpets manufactured from them. It can not fail to be vastly consolatory to these holy men to reflect that not only are their throats exercised in performing the sacred offices while they are living, but for generations after they are dead their bones will still continue to enact an important part in divine worship.

7. In addition to the *manis* and trumpets, the principal implements of worship found in the Buddhist temples are the *dooje*, or double thunder-bolt—which the lamas use much as the Catholic priests do the cross—bells, conch-shells, and brazen cups. These latter are perhaps intended to represent the sacred lotus, which bears so important a part in Buddhist mythology.

8. The most singular religious structures are the praying-mills, which occur at intervals along the courses of the mountain-torrents. They consist simply of a hut built over the stream, large enough to contain a *mani*. The shaft descends through the floor, and, being provided with floats at the lower extremity dipping into the water, the cylinder is kept in constant motion, praying away night and day on its own account for the benefit of whom it may concern.

Joseph Dalton Hooker.

BAZAARS OF CONSTANTINOPLE.

1. Bring all the shops of New York, Philadelphia, and Boston together around the City Hall, remove their fronts, pile up all their goods on shelves facing the street, cover the whole with a roof, and metamorphose your trim clerks into bearded, turbaned, and solemn old Mussulmans, smooth Jews, and rosy Armenians, and you will have something like the grand bazaar of Constantinople. You can scarcely get an idea of it without having been there. It is a city under cover. You walk all day, and day after day, from one street to another, winding and turning and trudging up hill and down, and never go out-of-doors. The roof is as high as those of our three-story houses, and the dim light so favorable to shop-keepers comes struggling down through sky-lights never cleaned except by the rains of heaven.

2. Strolling through the bazaar is an endless amusement. It is slow work, for the streets are as crowded as a church-aisle after service; and, pushed aside one moment by a bevy of Turkish ladies shuffling along in their yellow slippers, muffled to the eyes, the next by a fat slave carrying a child, again by a *kervas* armed to the teeth, and clearing the way for some coming dignitary, you find your only policy is to draw in your elbows, and suffer the motley crowd to shove you about at their pleasure.

3. Each shop in the world of traffic may be two yards wide. The owner sits cross-legged on the broad counter below, the height of a chair from the ground, and hands you all you want without stirring from his seat. One broad bench or counter runs the length of the street, and the different shops are only divided by the slight partition of the shelves. The purchaser seats himself on the counter to be out of the way of the crowd, and the shop-man spreads

out his goods on his knees, never condescending to open his lips except to tell you the price.

4. Ten to one, while you are examining his goods, the bearded trader creeps through the hole leading to his kennel of a dormitory in the rear, washes himself and returns to his counter, where, spreading his sacred carpet in the direction of Mecca, he goes through his prayers, perfectly unconscious of your presence, or that of the passing crowd. No vocation interferes with his religious duty. Five times a day, if he were running from the plague, the Mussulman would find time for prayers.

5. The Frank purchaser attracts a great deal of curiosity. As he points to an embroidered handkerchief, or a rich shawl, or a pair of gold-worked slippers, Turkish ladies of the first rank gather their *yash-macks* securely over their faces, stop close to his side, not minding if they push him a little to get nearer the desired article. Feeling not the least timidity, except for their faces, these true children of Eve examine the goods in barter, watch the stranger's countenance, and, if he takes off his glove, or pulls out his purse, take it up and look at it, without even saying, "By your leave."

6. Their curiosity often extends to your dress, and they put out their little henna-stained fingers and pass them over the sleeve of your coat with a gurgling expression of admiration at its fineness, or, if you have rings or a watch-guard, they lift your hand or pull out your watch with no kind of scruple. I have met with several instances of this in the course of my rambles. But a day or two ago I found myself rather more than usual a subject of curiosity. I was alone in the street of embroidered handkerchiefs, and, wishing to look at some of uncommon beauty, I called one of the many Jews always near a stranger to turn a penny by interpreting for him, and was soon up to the elbows in goods that would tempt a female angel out of paradise.

7. As I was selecting one for a purchase, a woman plumped down upon the seat beside me, and fixed her great, black, unwinking eyes upon my face, while an Abyssinian slave and another white woman, both apparently her dependents, stood respectfully at her back. A small turquoise ring (the favorite color in Turkey) first attracted her attention. She took up my hand, and turned it over in her soft, fat fingers, and dropped it again without saying a word. I looked at my interpreter, but he seemed to think it nothing extraordinary, and I went on with my bargain. Presently my fine-eyed friend pulled me by the sleeve, and as I leaned toward her rubbed her forefinger very quickly over my cheek, looking at me intently all the while. I was a little disturbed with the lady's familiarity, and asked my Jew what she wanted. I found that my rubicund complexion was something uncommon among these dark-skinned Orientals, and she wished to satisfy herself that I was not painted.

8. In the center of the bazaar, occupying about as much space as the body of the City Hall in New York, is what is called the *bezestein.* You descend into it from four directions by massive gates, which are shut, and all persons excluded, except between seven and twelve of the forenoon. This is the core of Constantinople, the soul and citadel of Orientalism. It is devoted to the sale of arms and to costly articles only. The roof is loftier and the light more dim than in the outer bazaars, and the merchants who occupy its stalls are old and of established credit.

9. Here are subjects for the pencil! If you can take your eyes from those Damascus sabers, with their jeweled hilts and costly scabbards, or from those gemmed daggers and guns inlaid with silver and gold, cast a glance along that dim avenue, and see what a range there is of glorious old gray-beards, with their snowy turbans! These are the Turks of the old *régime* before Sultan Mahmoud disfigured

himself with a coat like a "dog of a Christian," and broke in upon the customs of the Orient. These are your opium-eaters, who smoke even in their sleep, and would not touch wine if it were handed them by houris! These are your fatalists, who would scarce take the trouble to get out of the way of a lion, and who are as certain of the miracle of Mohammed's coffin as of the length of the pipe or the quality of the tobacco of Shiraz!

10. It is curious to see with what perfect indifference these old cross-legs attend to the wishes of a Christian. I was idling round one day with an English traveler, whom I had known in Italy, when a Persian robe of singular beauty hanging on one of the stalls arrested my companion's attention. He had with him his Turkish dragoman, and, as the old merchant was smoking away and looking right at us, we pointed to the dress over his head and the interpreter asked to see it. The Mussulman smoked calmly on, taking no more notice of us than of the white clouds curling through his beard. He might have sat for Michael Angelo's Moses. Thin, pale, calm, and of a statue-like repose of countenance and posture, with a large, old-fashioned turban, and a curling beard half-mingled with gray, his neck bare, and his fine bust enveloped in the flowing and bright-colored drapery of the East, I had never seen a more majestic figure. He evidently did not wish to have anything to do with us.

11. At last I took out my snuff-box, and addressing him with "Effendi!" the Turkish title of courtesy, laid my hand on my breast and offered him a pinch. Tobacco in this unaccustomed shape is a luxury here, and the amber mouth-piece emerged from his mustache, and, putting his three fingers into my box, he said, "Pek khe!" the Turkish ejaculation of approval. He then made room for us on his carpet, and with a cloth measure took the robe from its nail and spread it before us. My friend bought it un-

hesitatingly for a dressing-gown, and we spent an hour in looking at shawls, of prices perfectly startling, arms, chalices for incense, spotless amber for pipes, pearls, bracelets of the time of Sultan Selim, and an endless variety of "things rich and rare." The closing of the bezestein gates interrupted our agreeable employment, and our old friend gave us the parting salaam very cordially for a Turk. I have been there frequently since, and never pass without offering my snuff-box and taking a whiff or two from his pipe, which I can not refuse, though it is not out of his mouth, except when offered to a friend, from sunrise till midnight.

N. P. Willis.

REINDEER-TRAVELING.

1. After lunch we prepared ourselves to take our first lessons in driving the reindeer. I put on a *poesk* of reindeer-skin and my fur-lined Russian boots. Ludwig took a *pulk,* also, to assist us in case of need. These pulks are shaped very much like a canoe ; they are about five feet long, one foot deep, and eighteen inches wide, with a sharp bow and a square stern. You sit upright against the stern-board, with your legs stretched out in the bottom. The deer's harness consists only of a collar of reindeer-skin around the neck, with a rope at the bottom which passes under the belly between the legs, and is fastened to the bow of the pulk. He is driven by a single rein, attached to the base of the left horn, and passing over the back to the right hand of the driver, who thrusts his thumb into a loop at the end, and takes several turns around his wrist. The rein is held rather slack, in order that it may be thrown over to the right side when it slips to the left, which it is very apt to do.

2. I seated myself, took proper hold of the rein, and awaited the signal to start. My deer was a strong, swift animal, who had just shed his horns. Ludwig set off first; my deer gave a startling leap, dashed around the corner of the house, and made down-hill. I tried to catch the breath which had been jerked out of me, and to keep my balance, as the pulk, swaying from side to side, bounced over the snow. It was too late; a swift presentiment of the catastrophe flashed across my mind, but I was powerless to avert it. In another second I found myself rolling in the loose snow, with the pulk bottom upward beside me. The deer, who was attached to my arm, was standing still, facing me, with an expression of stupid surprise on his face.

3. I got up, shook myself, righted the pulk, and commenced again. Off we went, like the wind, down the hill, the snow flying in my face and blinding me. My pulk made tremendous leaps, bounding from side to side, until, the whirlwind suddenly subsiding, I found myself off the road, deep overhead in the snow, choked and blinded, and with small snow-drifts in my pockets, sleeves, and bosom. My beard and eyebrows became instantly a white, solid mass, and my face began to tingle from its snow-bath; but, on looking back, I saw as white a beard suddenly emerge from a drift, followed by the stout body of Braisted, who was gathering himself up after his third shipwreck.

4. We took a fresh start. I narrowly escaped another overturn, as we descended the slope below the house, but, on reaching the level of the Muonio, I found no difficulty in keeping my balance, and began to enjoy the exercise. My deer struck out, passed the others, and soon I was alone on the track. In the gray Arctic twilight, gliding noiselessly and swiftly over the snow, with the low huts of Muonioniska dimly seen in the distance before me, I had my true experience of Lapland traveling.

5. It was delightfully novel and exhilarating; I urged

my deer with shouts, and never once looked behind me until I had climbed the opposite shore and reached the village. My companions were then nowhere to be seen. I waited some time before they arrived, Braisted's deer having become fractious, and run back with him to the house. His crimson face shone out from its white frame of icy hair, as he shouted to me, "There is nothing equal to this except riding behind a whale when he drives to windward, with every man trimming the boat, and the spray flying over your bows!"

6. On leaving the house, we had to descend the steep bank of the river. I put out my feet to steady the pulk, and thereby plowed a cataract of fine snow into my face, completely blinding me. The pulk gave a flying leap from the steepest pitch, flung me out, and the deer, eager to make for home, dragged me by the arm for about twenty yards before I could arrest him. This was the worst upset of all, and far from pleasant, although the temperature was only zero. I reached home again without further mishap, flushed, excited, soaked with melted snow, and confident of my ability to drive reindeer with a little more practice.

Bayard Taylor.

PART XIV.

ISLANDS AND ISLANDERS.

THE FAROE ISLANDS.

1. The Faroe Islands lie about midway between Scotland and Iceland, and belong to Denmark. The whole group consists of thirty-five small islands, some of which are little more than naked rocks jutting up out of the sea. About twenty are inhabited. The rest are too barren and precipitous to afford a suitable place of abode even for the hardy Faroese. The entire population is estimated at something over six thousand, of which the greater part are shepherds, fishermen, and bird-catchers. Owing to the situation of these islands, surrounded by the open sea and within the influence of the Gulf Stream, the climate is very mild, although they lie in the sixty-second degree of north latitude. The winters are never severe, and frost and snow rarely last over two months. They are subject, however, at that season to frequent and terrible gales from the north, and during the summer are often inaccessible for days and even weeks, owing to dense fogs.

2. The humidity of the climate is favorable to the growth of grass, which covers the hills with a brilliant coating of green wherever there is the least approach to soil; and where there is no soil, as in many places along the shores, the rocks are beautifully draped with moss and lichens.

The highest point in the group is 2,800 feet above the level of the sea, and the general aspect of them all is wild and rugged in the extreme. Prodigious cliffs, a thousand feet high, stand like a wall out of the sea on the southern side of the Stromoe. The Mygenaes-holm, a solitary rock, guards, like a sentinel, one of the passages, and forms a terrific precipice of 1,500 feet on one side, against which the waves break with an everlasting roar. Here the solan-goose, the eider-duck, and innumerable varieties of gulls and sea-fowl, build their nests and breed.

3. At certain seasons of the year the intrepid bird-hunters suspend themselves from the cliffs by means of ropes, and "feather their own nests" by robbing the nests of their neighbors. Enormous quantities of eggs are taken in this way. The eider-down of which the nests of the eider-duck are composed is one of the most profitable articles of Faroese traffic. The mode of life to which these men devote themselves, and their habitual contact with danger, render them reckless, and many perish every year by falling from the rocks. Widows and orphans are numerous throughout the islands.

4. The few scattering farms to be seen on the slopes of the hills and in the arable valleys are conducted on the most primitive principles. A small patch of potatoes and vegetables, and in certain exposures a few acres of grain, comprise the extent of their agricultural operations. Sheep-raising is the most profitable of their pursuits. The climate appears to be more congenial to the growth of wool than of cereal productions. The Faroese sheep are noted for the fineness and luxuriance of their fleece, and it always commands a high price in market.

5. A considerable portion of it is manufactured by the inhabitants, who are quite skillful in weaving and knitting. They make a kind of thick woolen shirt—something like that known as the Guernsey—which for durability and

warmth is unsurpassed. Sailors and fishermen all over the northern seas consider themselves fortunate if they can get possession of a Faroese shirt. The costume of the men, which is chiefly home-made, consists of a rough, thick jacket of brown wool; a coarse woolen shirt; a knitted bag-shaped cap on the head; a pair of knee-breeches of the same material as the coat; a pair of thick woolen stockings, and sheep-skin shoes—generally covered with mud—all of the same brown or rather burnt-umber color. Exposure to the weather gives their skins—naturally of a leathery texture—something of the same dull and dingy aspect, so that a genuine Faroese enjoys one advantage—he can never look much more dirty at one time than another.

6. The women wear dresses of the same material, without much attempt at shape or ornament. A colored handkerchief tied round the head, a silver breast-pin, and a pair of ear-rings of domestic manufacture, comprise their only personal decorations. As in all countries where the burden of heavy labor is thrown upon the women, they lose their comely shapes at an early age, and become withered, ill-shaped, and hard-featured long before they reach the prime of life. The Faroese women doubtless make excellent wives for lazy men; they do all the labors of the house, and share largely in those of the field.

J. Ross Browne.

REYKIAVIK, THE CAPITAL OF ICELAND.

1. To a tourist of ardent imagination or to an artist, the first view of the capital of Iceland may appear peculiar if not picturesque, but to me it was only the fag-end of civilization, abounding in horrible odors of decayed polypi and dried fish. A cutting wind from the distant Jökulls,

and a searching rain, did not tend to soften the natural asperities of its features. In no point of view did it impress me as a cheerful place of residence except for wild ducks and sea-gulls. The whole country for miles around is a black desert of bogs and lava. Scarcely an arable spot is to be seen save on the tops of the fishermen's huts, where the sod produces an abundance of grass and weeds.

2. A dark gravelly slope in front of the town, dotted with boats, oars, nets, and piles of fish; a long row of shambling old store-houses built of wood, and painted a dismal black, varied by patches of dirty yellow; a general hodge-podge of frame shanties behind, constructed of old boards, and patched up with drift-wood; a few straggling streets, paved with broken lava and reeking with offal from the doors of the houses; some dozens of idle citizens and drunken boatmen lounging about the grog-shops; a gang of women, brawny and weather-beaten, carrying loads of codfish down to the landing; a drove of shaggy little ponies, each tied to the tail of the pony in front; a pack of mangy dogs prowling about in dirty places looking for something to eat, and fighting when they got it—this was all I could see of Reykiavik, the famous Icelandic capital.

3. The town lies on a strip of land between the harbor and a lagoon in the rear. It is said to contain a population of two thousand, and, if the dogs and fleas be taken into consideration, I have no doubt it does. Where two thousand human beings can stow themselves in a place containing but one hotel, and that a very poor one, is a matter of wonder to the stranger. The houses generally are but one story high, and seldom contain more than two or three rooms. Some half a dozen stores, it is true, of better appearance than the average, have been built by the Danish merchants within the past few years; and the residence of the Governor and the public university are not without some pretensions to style.

4. At each end of the town is a small gathering of sod-covered huts, where the fishermen and their families live like rabbits in a burrow. That these poor people are not all devoured by snails or crippled with rheumatism is a marvel to any stranger who takes a peep into their filthy and cheerless little cabins. The oozy slime of fish and smoke mingles with the green mold of the rocks; barnacles cover the walls, and puddles make a soft carpeting for the floors. The earth is overhead, and their heads are under the earth, and the light of day has no light job of it to get in edgewise through the windows. The beaver-huts and badger-holes of California, taking into consideration the difference of climate, are palatial residences compared with the dismal hovels of these Icelandic fishermen. At a short distance they look for all the world like mounds in a grave-yard. The inhabitants, worse off than the dead, are buried alive.

5. No gardens, no cultivated patches, no attempt at anything ornamental, relieves the dreary monotony of the premises. Dark patches of lava, all littered with the heads and entrails of fish; a pile of turf from some neighboring bog; a rickety shed in which the fish are hung up to dry; a gang of wolfish-looking curs, horribly lean and voracious; a few prowling cats, and possibly a chicken deeply depressed in spirits—these are the most prominent objects visible in the vicinity. Sloth and filth go hand in hand.

6. The women are really the only class of inhabitants, except the fleas, who possess any vitality. Rude, slatternly, and ignorant as they are, they still evince some sign of life and energy compared with the men. Overtaxed by domestic cares, they go down upon the wharves when a vessel comes in, and by hard labor earn enough to purchase a few rags of clothing for their children. The men are too lazy even to carry the fish out of their boats. At home they lie about the doors, smoking and gossiping, and too often

drunk. Some are too lazy to get drunk, and go to sleep over the effort. In truth, the prevailing indolence among all classes is so striking that one can almost imagine himself in a southern clime.

7. I should be very sorry to be understood as intimating, in my brief sketch of Reykiavik, that it is destitute of refined society. There are families of as cultivated manners here as in any other part of the world ; and, on the occasion of a ball or party, a stranger would be surprised at the display of beauty and style. The university and public library attract students from all parts of the island, and several of the professors and literary men have obtained a European reputation. Two semi-monthly newspapers are published at Reykiavik, in the Icelandic language. They are well printed, and said to be edited with ability. I looked over them carefully from beginning to end, and could see nothing to object to in any portion of the contents.

J. Ross Browne.

PART XV.

PECULIAR REGIONS AND PEOPLE.

THE GAUCHOS.

1. WHAT is a *gaucho?*

2. That is precisely what I am going to tell you.

3. Take my hand, if you please. Shod with the shoes of swiftness, we have annihilated space and time. We are standing in the center of a boundless plain. Look north and south and east and west: for five hundred miles beyond the limit of your vision the scarcely undulating level stretches on either hand. Miles, leagues away from us, the green of the torrid grass is melting into a misty dun; still farther miles, and the misty dun has faded to a shadowy blue; more miles, it rounds at last away into the sky. A hundred miles behind us lies the nearest village; two hundred in another direction will bring you to the nearest town. The swiftest horse may gallop for a day and night unswervingly, and still not reach a dwelling-place of man. We are placed in the midst of a vast, unpeopled circle, whose radii measure a thousand miles.

4. But see! a cloud arises in the south. Swiftly it rolls toward us; behind it there are tumult and alarm. The ground trembles at its approach; the air is shaken by the bellowing that it covers. Quick! let us stand aside!—for, as the haze is lifted, we can see the hurrying forms of a

thousand cattle, speeding with lowered horns and fiery eyes across the plain. Fortunately, they do not observe our presence; were it otherwise, we should be trampled or gored to death in the twinkling of an eye. Onward they rush; at last, the hindmost animals have passed; and see, behind them all there scours a man.

5. He glances at us, as he rushes by, and determines to give us a specimen of his only art. Shaking his long, wild locks, as he rises in the stirrup and presses his horse to the maddest gallop, he snatches from his saddle-bow the loop of a coil of rope, whirls it in his right hand for an instant, then hurls it through the air, a distance of fifty paces. A jerk and a strain—a bellow and a convulsive leap—his lasso is fast around the horns of a bull in the galloping herd. The horseman flashes a murderous knife from his belt, winds himself up to the plunging beast, severs at one swoop the tendon of its hind-leg, and buries the point of his weapon in the victim's spinal marrow. It falls dead. The man, my friend, is a gaucho; and we are standing on the Pampas of the Argentine Republic.

6. He is a strange individual, this gaucho Juan. Born in a hut built of mud and maize-stalks, somewhere on the superficies of these limitless plains, he differs little, in the first two years of his existence, from peasant babies all the world over; but, so soon as he can walk, he becomes an equestrian. By the time he is four years old there is scarcely a colt in all the Argentine that he will not fearlessly mount; at six he whirls a miniature lasso around the horns of every goat or ram he meets.

7. In those important years when our American youth are shyly beginning to claim the title of young men, and are spending anxious hours in contemplation of the slowly coming down upon their lip, young Juan, who never saw a dozen printed books, and perhaps has only heard of looking-glasses, is galloping, like a portion of the beast he rides,

over a thousand miles of prairie, lassoing cattle, ostriches, and guanacos, fighting single-handed with the jaguar, or lying stiff and stark behind the heels of some plunging colt that he has too carelessly bestridden.

8. The vanqueano is a grave and reserved gaucho, who knows by heart the peculiarities of twenty thousand miles of mountain, wood, and plain! He is the only map that an Argentinian general takes with him in a campaign, and the vanqueano is never absent from his side.

9. Stand with him at midnight on the Pampas—let the track be lost—no moon or stars; the vanqueano quietly dismounts, examines the foliage of the trees, if any are near, and, if there are none, plucks from the ground a handful of roots, chews them, smells and tastes the soil, and tells you that so many hours' travel due north or south will bring you to your destination. Do not doubt him; he is infallible.

10. The official trailer is of another stamp. Like his kinsman, the vanqueano, he is a personage well convinced of his own importance—grave, reserved, taciturn, whose word is law. Such a one was the father Calébar, the dreaded thief-taker of the Pampas, the Vidocq of Buenos Ayres. This man during more than forty years exercised his profession in the republic, and a few years since was living, at an advanced age, not far from Buenos Ayres. There appeared to be concentrated in him the acuteness and keen perceptions of all the brethren of his craft; it was impossible to deceive him: no one, whose trail he had once beheld, could hope to escape discovery.

11. An adventurous vagabond once entered his house, during his temporary absence on a journey to Buenos Ayres, and purloined his best saddle. When the robbery was discovered, his wife covered the robber's trail with a kneading-trough. Two months later Calébar returned, and was shown the almost obliterated foot-print. Months

rolled by; the saddle was apparently forgotten; but a year and a half later, as the *rastreador* was again at Buenos Ayres, a foot-print in the street attracted his notice. He followed the trail, passed from street to street, from plaza to plaza, and, finally entering a house in the suburbs, laid his hand upon the begrimed and worn-out saddle which had once been his own.

Atlantic Monthly.

THE LLANOS AND LLANEROS.

1. Let us transport ourselves in imagination to the Llanos or plains of Venezuela. It is a region similar in some respects, widely dissimilar in others, to the more celebrated Pampas of the regions to the south. The wonderful plain, covering more than two hundred thousand square miles, and forming the basin of the gigantic Orinoco, is a study itself. The stranger who descends upon the vast savanna from the mountains that line and defend the coast is impressed with the momentary belief, when his eye for the first time sweeps over the level immensity, that he is again approaching the sea. From the hilly country from which he has toiled, he beholds at his feet a limitless and dusky plain, smooth as an ocean in repose, but undulating like it in gigantic sweeps and curves.

2. The Llanos that he sees spread out before him thus are one huge and exuberant pasture. Like the Pampas of Buenos Ayres, they are the support of myriads of roaming cattle, but unlike them they are intersected by numerous rivers, and suffer rather from excess than lack of moisture. The Orinoco sweeps, in turbid magnificence, from west to east, traversing their entire breadth; and its countless tributaries seam in every direction the immense plain thus divided, and frequently by their unmanageable floods turn it for thousands of miles into a lake.

3. The dwellers in this region have a character no less distinctive than that of the plains themselves. At long intervals, sometimes scores of miles apart, their habitations are established; but their home is the saddle. Innumerable herds of cattle and of horses turn to account the pasturage of the rich savanna; and the true llanero exists only as guardian or proprietor of these savage hosts.

4. He is as much at home in this trackless expanse of rank vegetation as the mariner navigating a familiar sea. There are no roads in the llanos; but he can gallop unerringly to any given point, be it hundreds of miles away. There are no boundaries to the huge estates; but he knows when the cattle he is set to protect are grazing upon their own territory or upon that of a neighbor. He leads a life in which the extremes of solitariness and activity are combined. Separated from his nearest neighbor by a journey of half a day, visited only rarely at his *hato* or farm-house by some casual traveler, or by the itinerant Galician peddler, the silent horseman lives wrapped up in ignorance of all but the care of the roving beasts that are intrusted to his vigilance.

5. Let us glance somewhat more nearly at the llanero in his home. If we are able to obtain an elevated view of the savanna—let us say in the llanos which constitute the province of Barinas, and through which the Apure rolls its rapid current to swell the volume of the Orinoco—we shall observe, at distant intervals upon the plain, irregular groups of palm-trees surmounting the wavy level of the grass. These isolated clumps or groves, called *matas* in the provincial idiom, prove the landmarks of the Venezuelan plains; and in the neighborhood of each we shall find the hato or dwelling of a llanero.

6. The building we shall find in every case is a roughly constructed hut consisting of a floor raised a couple of feet above the spongy soil, and covered with a steep roof of

palm-branches, with perhaps a thatch composed of the leaves of the same invaluable tree. A rough partition of mud-plastered twigs divides the llanero's dwelling into unequal apartments; the lesser being reserved for the use of the females of the household, while the larger, furnished with half a dozen hides, the skin of a jaguar, and a couple of benches or stools ingeniously manufactured from bamboo, is the general reception-room, sleeping-apartment, and workshop for the *hatero* when the floods are out, or when he takes a fancy at other times to shelter his head beneath a roof.

7. The hatero, although a descendant, and proud that he is so, of the Spanish settlers, has much intermixture of Indian and negro blood. Few of the llaneros, indeed, could show a pedigree in which the Castilian blood was not sorely attenuated and diluted with that of half a dozen Indian or negro progenitors. He is born on the llanos, as were his ancestors for many generations; and he has no conception of land in which cattle-plains are unknown, and where the carcass of an animal is of more value than the hide. His ideas are restricted to his occupation, and his religious notions limited to the traditional instruction handed down from the days when his forefathers lived amid civilized men, or to the casual teaching of some fervent missionary who devotes himself to the spiritual welfare of these lonely dwellers on the plains.

8. The women are as much accustomed to solitude as the men, and spend their time in domestic occupations, or in cultivating the little patch of ground upon which their supply of maize and cassava grows. Men and women alike are a simple, healthy, ignorant race, borrowing manners, dress, and dialect rather from the Indian than the Spanish stock.

9. Around his hato, perhaps, there are between one and two hundred thousand head of cattle and horses, guarded

here and there by isolated posts of a nature similar to his own. The animals, savage from their birth, roam the plain in droves of many hundreds, each herd commanded by two or three bulls or stallions no less despotic than that of a colonel of a Russian regiment. They sweep from feeding-ground to feeding-ground, galloping eight or ten abreast, headed by scouts, and suffering no human being or strange animal to cross their path. As the dusky squadron hurries, like an incarnate whirlwind, from one point to another, every one prudently withdraws from their irresistible advance; and instances have occurred in which large bodies of troops, marching across the plains, have been scattered and routed by an accidental charge of some such wild-eyed regiments.

10. At certain intervals the branding takes place, when drove after drove are dexterously compelled within the walls of the *corral*, and there marked with the initials or cipher of the proprietor. This is the great festival of the hatero, and he invites to it all his neighbors for scores of leagues around. The bellowing cattle, the plunging steeds, the excitement of lassoing some bull more refractory than usual, the hissing of the iron as it sears the brand-mark deep into the animal's hide, all these are elements of exquisite enjoyment to the unsophisticated Rarey of the plains.

11. A llanero cares little for death. He faces it daily in his lonely converse with thousands of intractable beasts; in his bath in the river swarming with alligators; in the swamp teeming with serpents, against whose poison there is no antidote, and whose bite will destroy the life of a man in a single hour. Content with the wild excitement of his daily round of duty and recreation, with his meal of dried beef and cassava-cake, washed down it is likely with a gourdful of *guarapo*, a species of rum in comparison with which the New England beverage is innocent and weak,

and with the occasional recurrence of some such turbulent festival as that of branding, he cares nothing for the future, and bestows no thought upon the past. The llanero may be called a happy man.

Atlantic Monthly.

ABORIGINES OF AUSTRALIA.

1. In one thing the first settlers of Australia were fortunate.

2. The aborigines were few; they cultivated no soil, built no huts, possessed no ornaments of gold and silver, and knew not the use of metals. Their dwellings consisted merely of a few bits of thick bark peeled from the trees and set upright, as a protection from the wind; a fire was built in front of the open side, and their habitation was complete. Such a dwelling was called a *gunyah.*

3. Their weapons were the club, the spear—they do not seem to have been acquainted with the bow—and the *boomerang.* This last weapon is peculiar to the aborigines of Australia, and its mode of action is a puzzle to mathematicians. It is simply a crooked piece of hard wood, three feet long and three inches broad, pointed at each end, the concave side a quarter of an inch thick, the convex side made sharp. The native takes it by one end and flings it sickle-wise with his hand, when, of course, it revolves as though upon an axis. If he wishes to strike an object at a distance, he flings it toward the ground as a boy does a flat stone upon the water to make it "skip." And just so the boomerang goes skipping to its mark.

4. If he wishes to throw it so that it shall fall at his own feet, he flings it at a particular angle up into the air; away goes the boomerang whizzing and whirling in ascending curves, until all at once it turns short round, and flies

back directly to its master. And so, by altering the angle at which it is thrown, the weapon strikes at any point behind him. In like manner, the boomerang may be thrown around an intervening object, actualizing in a fashion the joke of a crooked gun to shoot around a corner. The weapon is quite useless in the hands of a European, being quite as likely to strike the thrower as the object aimed at; but in the hands of a native it is a formidable missile, striking from the most unsuspected direction in spite of any defense. You sit unconcernedly behind a rock or tree, thinking yourself safe from an attack in the rear; but the boomerang doubles the corner, and is upon you. That innocent-looking native walking off with his back to you may be at the instant taking aim at you with the inevitable back-flying boomerang. It doubtless originated from the necessity, in hunting the kangaroo, that the shy animal should not see his assailant; but it is singular that so barbarous a people should have invented such a weapon.

5. The aborigines of Australia possess a physical appearance different from any other race, or rather compounded of many. To the black color of the African they add the straight, silky hair of the Malay and the lean, long limbs of the Hindoo; while their language bears a remarkable affinity to that of the North American Indians. They seem to be entirely destitute of any form of government or chieftainship, and to be merely an aggregation of separate families.

6. Though possessing no fixed habitations, their migrations were confined within narrow limits, no family apparently exceeding fifty or sixty miles in wanderings. Their numbers were small, never probably amounting to more than a hundred thousand souls. This paucity arose less from wars among themselves than from the incapacity of the country for their support. Nothing can come amiss to their omnivorous appetites; worms and slugs were as

little distasteful to them as oysters and shrimps to us, and the larvæ of insects constituted a dainty dish.

7. So feeble a race of course melted away before the rough convicts and settlers, who shot them down with as little scruple as so many kangaroos, and they are now almost extinct.

Alfred H. Guernsey.

MONACO.

1. WHERE the hill-sides that skirt the shore of the Mediterranean near the boundary border-line between France and Italy lies the little country of Monaco, which has had an independent existence of nearly a thousand years. Among principalities Monaco is what Tom Thumb is among men. It is curious because of its smallness; it deserves a visit, however, because of its beauty. A few houses, perched on the top of a lofty rock jutting into the sea, constitute at once the principality and its capital. The population is rated as high as fourteen hundred and as low as six hundred people.

2. The army used to number fifty men; it is now understood to number eight privates, and as many or more officers. There is a great difficulty in getting correct information on this head, but it would not materially affect the balance of power in Europe did the army of Monaco consist of double the highest number of men I have stated. The artillery is disproportionately in excess of the other branches of the service. For every man there is at least one cannon; unfortunately, however, all the cannon are dismounted, and the whole force of the army would barely suffice to get one into position. Of rusty cannon-balls and empty shells there are several piles in the principal square.

3. No one who walks through the streets or round the

ramparts of this little town can think long of war and its horrors. Nature is here too lovely to permit the mind doing other service than to admire. Several hundred feet down the Mediterranean ripples against the rock, and so

Monaco.

clear is the water that it resembles a liquid glass revealing rather than hiding the bed it covers.

4. As regards climate, Monaco is more favored than Nice. At the latter, orange-trees grow; at the former, lemon-trees flourish and bear good fruit. The lemon- is more delicate than the orange-tree, but it is less beautiful. A grove of lemon- is to a grove of orange-trees what a group of pale-faced children, born and nursed in a city, is to a group of rosy-cheeked and robust country children. There is not a sufficient contrast between the light hue of the

fruit and the green tints of the lemon-leaves; moreover, the leaves of the lemon are deprived of that exquisite tinge of yellow and green which is so lovely when lit up by a strong light.

5. Sheltered from biting winds, gay with flowers, placed on an eminence which commands an extensive prospect, it might be supposed that Monaco was a fairy-land. But it is a place which it is pleasanter to read about than to inhabit. Like those Oriental lands which would be terrestrial paradises were it not for the ravening monsters which fill the waters, the poisonous serpents which cover the ground, the seeds of dire maladies which float in the air, Monaco has a drawback quite as serious as the cold and rain which render an English winter almost unendurable.

6. The curse of Monaco is moisture. Were it not for the humidity of its atmosphere, the flowers and plants would neither germinate nor wear a summer garb in the month of January. As it is, there is as much dew deposited by night as if a shower of rain had fallen. Small pools of water may be seen in the hollows of stones. The soil is moistened to the depth of an inch or two. In the morning the spot on which the sun had shone is easily known by the difference between its color and that of the portion still in the shade. While, then, nothing can be pleasanter than the soft air at midday, the damp air at nightfall is of all things the most unpleasant and prejudicial to health. That such a climate should be other than insalubrious I can not believe.

W. F. Rae.

ANNAM AND ITS PEOPLE.

1. Between India and the Chinese Empire lies the peninsula of Indo-China, jutting far out into the Indian Ocean. The southeastern portion of the peninsula is oc-

cupied by the Empire of Annam, of which the chief maritime province is known to Europeans as Cochin China. The lower portion of this country is a nearly level plain, watered by large rivers, and deeply indented by tidal streams. The rainy season lasts from April to December, during which the inhabitants live in a vapor bath. The climate is certainly not a healthy one for Europeans.

2. The people of Annam are evidently of Mongol extraction. Their complexion is of a dark sallow hue, varying from a dirty white to a yellowish olive-color. In stature they are short, but thick-set and remarkably active. Their features are by no means beautiful according to the European idea of beauty. They have short square noses, prominent cheek-bones, thin lips, and small black eyes, the eyeballs being rather yellow than white. Their teeth, which are naturally of a pure white, are stained by the excessive use of the betel-nut. Their countenances are chiefly marked by the breadth and height of their cheek-bones, and are nearly of the shape of a lozenge. The women are better looking and decidedly more graceful than the men, even in the lower classes, but both sexes are particularly cheerful and vivacious. The upper classes, however, affect the solemn air and grave deportment of the Chinese, and are consequently much less agreeable to strangers than are the less dignified orders.

3. Corpulence is considered a great beauty—a fat face and a protuberant stomach constituting the ideal of an Adonis. Both men and women wear their hair long, but gathered up at the back of the head in a knot. It is never cut save in early youth, when it is all shaved off with the exception of a small tuft on the top of the crown. A close-cropped head of hair, indeed, is looked upon as a badge of infancy, and is one of the distinguishing marks of a convicted criminal. The beard is allowed to grow naturally, but consists of little more than a few scattered hairs at the

end of the chin. The nails should be very long, thin, and sharp-pointed, and by the women are usually stained of a red color.

4. The Annamites dress themselves in silk or cotton, according to their means; but, whatever the material, the form of their garb is always the same. In addition to wide trousers fastened round the waist by a silken girdle, they wear a robe descending to the knees, and occasionally a shorter one over that; both equally opening on the right side, but closed by five or six buttons. The men's sleeves are very wide, and so long that they descend considerably lower than the ends of the fingers. The women, however, who, in other respects, dress precisely as do the men, have their sleeves somewhat shorter, in order to display their metal or pearl bracelets.

5. Out of doors men and women alike wear varnished straw hats, upward of two feet in diameter, fastened under the chin, and very useful as a protection against sun and rain, though somewhat grotesque in appearance. Within doors the women go bareheaded, not unfrequently allowing their fine black tresses to hang loose down their backs almost to the ground. Ear-rings, bracelets, and rings on their fingers are favorite objects of female vanity; but a modest demeanor is a thing unknown, a bold, dashing manner being most admired by the men. They are certainly not good-looking; but their natural liveliness amply compensates for the absence of personal charms.

6. Old men and persons of distinction alone wear sandals; the people generally prefer to go barefooted. A pair of silken purses, or bags, to carry betel money and tobacco, may be seen in the hand, or hanging over the shoulder of every man and woman not actually employed in hard labor. They are, for the most part, of blue satin, and sometimes richly embroidered. Like their neighbors, the Chinese, the Annamites are scrupulous observers of the distinctive

insignia of rank, but pay no regard to personal cleanliness. Notwithstanding their frequent ablutions, their clothes, their hair, their fingers and nails, are disgustingly dirty. Even wealthy persons wear dirty cotton dresses within doors, over which they throw their smart silken robes when they go out.

7. Taste is proverbially a matter beyond dispute; but it would be very hard for any European to agree with an Annamite as to what constituted a delicacy, and what an abomination. A Cochin Chinese epicure delights, for instance, in rotten eggs, and is especially fond of them after they have been under a hen for ten or twelve days. From stale fish, again, he extracts his choicest sauce, and feasts greedily upon meat in a state of putrefaction. Vermin of all sorts is highly appreciated. Crocodile's flesh is also greatly prized; though boiled rice and a little fish, fresh-smoked or salted, are the ordinary food of the poor. Among delicacies may be mentioned silk-worms fried in fat, ants and ants' eggs, bees, insects, swallows' nests, and a large white worm found in decayed wood. Among the rich the dishes are placed on low tables a foot or two in height, round which the diners seat themselves on the ground in the attitude of tailors. Forks and spoons are equally unknown, but chopsticks are used after the Chinese fashion. The dinner usually begins, instead of ending, with fruit and pastry. During the meal nothing liquid is taken, but before sitting down it is customary to take a gulp or two of strong spirits distilled from fermented rice, and after dinner several small cups of tea are drunk by those who can afford to do so. Cold or unadulterated water is thought unwholesome, and is, therefore, never taken by itself. Betel-nut mixed with quicklime is constantly chewed by both men and women, and of late years the use of opium has partially crept in.

8. The houses of the Annamites are only one story high,

and very low in the roof. They are, in fact, mere halls, the roof of which is usually supported on bamboo pillars, on which are pasted strips of many-colored paper inscribed with Chinese proverbs. The roof slopes rather sharply, and consists of reed or straw. Neither windows nor chimneys are seen. The smoke escapes and the light enters by the door. The walls are made of palm-leaves, though rich people often employ wood for that purpose. In either case they are filthily dirty, and swarm with insects. At the farther end of the house is a raised platform, which serves as a bed for the entire family. The floor is of earth, not unfrequently traversed by channels hollowed out by the rain which descends through the roof.

9. It is usual for the men to marry as soon as they have means to purchase a wife. The price of such an article varies, according to circumstances, from two to ten shillings, though rich people will give twice or three times that sum for anything out of the common run. Wives are not locked up as in Mohammedan countries, but with that exception they are quite as badly treated, being altogether at the mercy of their husbands. They are, in truth, little better than slaves or beasts of burden. It is they who build the houses, who cultivate the land, who manufacture the clothes, who prepare the food, who, in short, do everything.

10. They have nine lives, say their ungrateful husbands, and can afford to lose one without being the worse for it. The men, though by no means destitute of strength and courage, are lazy, indolent, and averse to bodily exercise, and are chiefly engaged at home in the petty intrigues of an almost real commerce.

Temple Bar.

THE AINOS.

1. The chief object of interest to the traveler is the remnant of the Aino race, the aborigines of Yezo, and not improbably of the whole of Japan, peaceable savages, who live on the coasts and in the interior by fishing and hunting, and stand in the same relation to their Japanese subjugators as the red Indians to the Americans. In truth, it must be added that they receive better treatment from their masters than is accorded to subject races generally.

2. They are a wholly distinct race from the Japanese. In complexion they resemble the people of Spain and Southern Italy, and the expression of the face and manner of showing courtesy are European rather than Asiatic.

3. The Ainos are truthful, and, on the whole, chaste, hospitable, honest, reverent, and kind to the aged. Drinking, their great vice, is not, as among us, in antagonism to their religion, but is actually a part of it, and, as such, would be exceptionally hard to eradicate.

4. All but two or three I have seen are the most ferocious looking of savages, with a *physique* vigorous enough for carrying out the most ferocious intentions; but, as soon as they speak, the countenance brightens into a smile as gentle as that of a woman—something that can never be forgotten.

5. The men are about middle height, broad-chested, broad-shouldered, "thick set," very strongly built, the arms and legs short, thick, and muscular. The bodies, and especially the limbs, are covered with short bristly hair.

6. The heads and faces are very striking. The foreheads are high, broad, and prominent, and, at first sight, give one the impression of an unusual capacity for intellectual development; the ears are small and set low; the noses are straight, but short and broad at the nostrils; the mouths are wide but well formed; and the lips rarely show a tendency to fullness. The neck is short, the cranium

rounded, the cheek bones low, and the lower part of the face is small as compared with the upper, the peculiarity called a "jowl" being unknown. The eyebrows are full and form a straight line nearly across the face. The eyes are large, tolerably deeply set, and very beautiful, the color a rich liquid brown, the expression singularly soft, and the eyelashes long, silky, and abundant. The skin has the Italian olive tint, but in most cases is thin and light enough to show the changes of color in the cheek. The teeth are small, regular, and very white.

7. The "ferocious savagery" of the appearance of the men is produced by a profusion of thick, soft, black hair, divided in the middle and falling in heavy masses nearly to the shoulders. Out of doors it is kept from falling over the face by a fillet around the brow. The beards are equally profuse, quite magnificent, and generally wavy, and, in the case of the old men, they give a truly patriarchal and venerable aspect, in spite of the yellow tinge produced by smoke and want of cleanliness. The savage look produced by the masses of hair and beard and the thick eyebrows is mitigated by the softness in the dreamy brown eyes, and is altogether obliterated by the exceeding sweetness of the smile which belongs in greater or less degree to all the rougher sex.

8. Passing travelers who have seen a few of the Aino women on the road to Satsupora speak of them as very ugly, but as making amends for their ugliness by their industry and conjugal fidelity. Of the latter there is no doubt, but I am not disposed to admit the former. The ugliness is certainly due to art and dirt. The Aino women seldom exceed five feet and half an inch in height, but they are beautifully formed, straight, lithe, and well developed, with small feet and hands, well-arched insteps, rounded limbs, and a firm, elastic gait. Their heads and faces are small, but the hair, which falls in masses on each side of the face, like that of the men, is equally abundant. They

have superb teeth, and display them liberally in smiling. Their mouths are somewhat wide, but well formed, and they have a ruddy comeliness about them, which is pleasing in spite of the disfigurement of the band which is tattooed both above and below the mouth.

9. A girl at Sherôvi, who for some reason has not been subjected to this process of tattooing, is the most beautiful creature in feature, coloring, and natural grace, that I have seen for a long time. Their complexions are lighter than those of the men. There are not many here even as dark as our European brunettes.

10. The children are very pretty and attractive, and their faces give promise of an intelligence which is lacking in those of the adults. They are much loved, and are caressing as well as caressed. Implicit and prompt obedience is required from infancy; and from a very early age the children are utilized by being made to fetch and carry and go on messages. I have seen children apparently not more than two years old sent for wood; and even at this age they are so thoroughly trained in the observances of etiquette, that babies just able to walk never toddle into or out of a house without formal salutation to each person within it, the mother alone excepted.

11. Their manners toward their parents are very affectionate. Even to-day, in the chief's awe-inspiring presence, one dear little nude creature, who had been sitting quietly for two hours staring into the fire with her big brown eyes, rushed to meet her mother when she entered, and threw her arms around her, to which the woman responded by a look of true maternal tenderness and a kiss. These little creatures in their absolute unconsciousness, with their beautiful faces, olive-tinted bodies—all the darker, sad to say, from dirt—their perfect docility, and absence of prying curiosity, are very bewitching.

Isabella L. Bird.

PART XVI.

CITIES.

PEKING.

1. Peking is an ancient city, the origin of which is unknown. Its name is derived from *Pei*, north, and *king*, capital.

2. It was the residence of Kublai-Khan about the year 1264, and in the year 1421 was established as the capital city by Yung-Lo, third Emperor of the Ming dynasty, and has remained so since that time.

3. It is in the midst of a wide alluvial plain in the northern part of the empire, and not far from the "Great Wall," which still stands. The city is inclosed by a wall, faced with large brick, sixty to seventy feet in height, and is thirty to sixty feet wide on the top. From this wall you look down upon the great city—or cities—its houses, temples, and leafy gardens. Along the wall and at its angles are large and high towers, which are used for barracks for the guards who always watch over the city.

4. It is divided into two parts, one the Tartar, or Manchu, the other the Chinese city. The Tartar city has three inclosures, one within the other, the center of all being the Emperor's city, containing the imperial palaces and their surroundings. Here the roofs are covered with yellow porcelain, the color of royalty, which glitter in the shining

sun. Here is a vast assemblage of palaces, pavilions, porticoes, devoted to the Emperor and to the ladies and attendants of the royal household. In the center of the great flower-garden, in which grow a variety of trees, stand the palaces of the Emperor. The principal gate or entrance to this is called the gate of the Mid-day Sun, for through it walks forth the Emperor himself.

5. The Tartar city is separated from the Chinese city by a wall and gates, and contains about fifteen square miles. The Chinese city, also protected by walls, is somewhat smaller, but more populous.

6. Broad streets, one hundred feet wide, run through the Chinese city at right angles, upon which are the great shops where the principal business is done. The houses are of but one story, built of gray brick, and often plastered and colored. Awnings and booths encroach upon the street, and much space is taken up by piles of goods so arranged as to attract the eyes of the purchaser. Flags and streamers make all gay; and tall posts and perpendicular signs are covered with extravagant praise of the goods which the merchant desires to sell.

7. These great streets are thronged during the busy hours of morning and evening. They are not paved, and the side-streets are narrow and neglected. Clouds of dust fill the air during a portion of the year, and particularly during the winter months, when not a drop of rain falls upon the light alluvial soil. Nor are the streets lighted; for after nightfall few persons go about.

8. A police, armed with strong whips, endeavors, however, to preserve order and repress thefts. The fat of sheep and the oil of seals suffice for lamps. Fuel is brought from the coal mines, thirty or forty miles, on the backs of camels. They are most striking and picturesque, as they are seen in long strings of a hundred or more making their way across the broad plain. Carriages like ours do not exist; but

small covered carts, without springs and drawn by mules, are to be hired in the streets, as are also sedan-chairs. The shop-keepers are men. Tailors are women, and they also make the clothes for women, except those made at home.

9. It is not uncommon to see various vocations carried on in the open street. The barber twangs his tools, and prepares to plait the tails, shave the heads, smooth the eyebrows; a cook, under his broad umbrella, fries and stews to tickle the taste of some hungry Chinaman; a fortune-teller is ready to tell what *he* thinks you want to know; a medical man is not above giving you a dose in the street for a quarter of a dollar; and an itinerant will supply you with the "classics" or with a love-song for a few cash.

CAIRO.

1. Our approach to and entrance into Cairo was the illuminated frontispiece to the volume of my Eastern life. From the Nile we had already seen the mosque of Sultan Hassan, the white domes, and long, pencil-like minarets of the new mosque of Mohammed Ali, and the massive masonry of the Citadel, crowning a projecting spur of the Mokattem Hills, which touches the city on the eastern side. But when, mounted on ambling donkeys, we followed the laden baggage-horses through the streets of Boolak, and entered the broad, shaded highway leading through gardens, grain-fields, and groves of palm and banana, to the gate of the great square of Cairo, the scene, which, at a distance, had been dimmed and softened by the filmy screen of the Egyptian air, now became so gay, picturesque, and animated, so full of life and motion and color, that my dreams of the East were at one displaced by the vivid reality.

2. The donkey-riding multitudes who passed continually to and fro were wholly unlike the crowds of Smyrna and Alexandria, where the growing influence of European dress and customs is already visible. Here, everything still exhaled the rich aroma of the Orient, as it had been wafted to me from the "Thousand and One Nights," the Persian poets, and the Arab chroniclers. I forgot that I still wore a Frank dress, and found myself wondering at the temerity of the few Europeans we met. I looked without surprise on the long processions of donkeys carrying water-skins, the heavily-laden camels, the women with white masks on their faces and black bags around their bodies, the stolid Nubian slaves, the grave Abyssinians, and all the other various characters that passed and repassed us. But because they were so familiar they were none the less interesting, for all had been acquaintances, when, like Tennyson, "true Mussulman was I, and sworn," under the reign of good Haroun Al-Raschid.

3. The Turkish quarter of Cairo still retains the picturesque Saracenic architecture of the times of the Caliphs. The houses are mostly three stories in height, each story projecting over the other, and the plain stone walls are either whitewashed or striped with horizontal red bars, in a manner which would be absurd under a northern sky, but which is here singularly harmonious and agreeable. The only signs of sculpture are occasional doorways with richly carved arches, or the light marble gallery surrounding a fountained court. I saw a few of these in retired parts of of the city.

4. The traveler, however, has an exhaustless source of delight in the wooden balconies inclosing the upper windows. The extraordinary lightness, grace, and delicate fragility of their workmanship, rendered still more striking by contrast with the naked solidity of the walls to which they cling, gave me a new idea of the skill and fancy of the

Saracenic architects. The wood seems rather woven in the loom than cut with the saw and chisel. Through these lattices of fine net-work, with borders worked in lace-like patterns, and sometimes topped with slender turrets and pinnacles, the wives of Cairene merchants sit and watch the

Cairo from the East.

crowds passing softly to and fro in the twilight of the bazaars, themselves unseen. It needed no effort of the imagination to people the fairy watch-towers under which we rode

daily, with forms as beautiful as those which live in the voluptuous melodies of Hafiz.

5. To see Cairo thoroughly, one must first accustom himself to the ways of those long-eared cabs, without the use of which I would advise no one to trust himself in the bazaars. Donkey-riding is universal, and no one thinks of going beyond the Frank quarter on foot. If he does, he must submit to be followed by not less than six donkeys with their drivers. A friend of mine, who was attended by such a cavalcade for two hours, was obliged to yield at last, and made no second attempt. When we first appeared in the gateway of our hotel, equipped for an excursion, the rush of men and animals was so great that we were forced to retreat until our servant and the porter whipped us a path through the yelling and braying mob.

6. After one or two trials, I found an intelligent Arab boy, named Kish, who, for five piastres a day, furnished strong, ambitious donkeys, which he kept ready at our door from morning till night. The other drivers respected Kish's privilege, and thenceforth I had no trouble. The donkeys are so small that my feet nearly touched the ground, but there is no end to their strength and endurance. Their gait, whether a pace or a gallop, is so easy and light that fatigue is impossible. The drivers take great pride in having high-cushioned red saddles, and in hanging bits of jingling brass to the bridles. They keep their donkeys close shorn, and frequently beautify them by painting them various colors.

7. The passage of the bazaars seems at first quite as hazardous on donkey-back as on foot, but it is the difference between knocking somebody down and being knocked down yourself, and one naturally prefers the former alternative. There is no use in attempting to guide the donkey, for he won't be guided. The driver shouts behind, and you are dashed at full speed into a confusion of other don-

keys, camels, horses, carts, water-carriers, and footmen. In vain you cry out: "Bess!" (enough!) "Piano!" and other desperate adjurations; the driver's only reply is: "Let the bridle hang loose!"

8. You dodge your head under a camel-load of planks; your leg brushes the wheel of a dust-cart; you strike a fat Turk plump in the back; you miraculously escape upsetting a fruit-stand; you scatter a company of spectral, white-masked women, and at last reach some more quiet street, with the sensation of a man who has stormed a battery. At first this sort of riding made me very nervous, but finally I let the donkey go his own way, and took a curious interest in seeing how near a chance I ran of striking or being struck.

9. Sometimes there seemed no hope of avoiding a violent collision, but by a series of the most remarkable dodges he generally carried me through in safety. The cries of the driver, running behind, gave me no little amusement: "The Howadji comes! Take care on the right hand! take care on the left hand! O man, take care! O maiden, take care! O boy, get out of the way! The Howadji comes!" Kish had strong lungs, and his donkey would let nothing pass him, and so, wherever we went, we contributed our full share to the universal noise and confusion.

Bayard Taylor.

EDINBURGH.

1. It is an odd place, Edinboro'. The old town and the new are separated by a broad and deep ravine, planted with trees and shrubbery; and across this, on a level with the streets on either side, stretches a bridge of a most giddy height, without which all communication would apparently be cut off. "Auld Reekie" itself looks built on the back-

bone of a ridgy crag, and towers along on the opposite side of the ravine, running up its twelve-story houses to the sky in an ascending curve, till it terminates in the frowning and battlemented castle, whose base is literally on a mountain-top in the midst of the city.

Street in Old Edinburgh.

2. At the foot of this ridge, in the lap of the valley, lies Holyrood-house; and between this and the castle runs a single street, part of which is the old Canongate. Princes' Street, the Broadway of the new town, is built along the opposite edge of the ravine facing the long, many-windowed walls of the Canongate, and from every part of Edinboro' these singular features are conspicuously visible. A more striking contrast than exists between these two parts of the same city could hardly be imagined.

3. On one side a succession of splendid squares, elegant

granite houses, broad and well-paved streets, columns, statues, and clean sidewalks thinly promenaded, and by the well-dressed exclusively—a kind of wholly grand and half-deserted city, which has been built too ambitiously for its population—and on the other, an antique wilderness of streets and "wynds," so narrow and lofty as to shut out much of the light of heaven; a thronging, busy, and particularly dirty population, sidewalks almost impassable from children and other respected nuisances; and altogether, between the irregular and massive architecture, and the unintelligible jargon agonizing the air about you, a most outlandish and strange city. Paris is not more unlike Constantinople than one side of Edinboro' is unlike the other. Nature has probably placed a "great gulf" between them.

N. P. Willis.

DAMASCUS.

1. It has been generally understood, I believe, that the houses of Damascus are more sumptuous than those of any other city in the East. Every rich man's house stands detached from its neighbors at the side of a garden, and it is from this cause, no doubt, that the city has hitherto escaped destruction. You know some parts of Spain, but you have never, I think, been in Andalusia; if you had, I could easily show you the interior of a Damascene house by referring you to the Alhambra or Alcazar of Seville.

2. The lofty rooms are adorned with a rich inlaying of many colors and illuminated writings on the walls. The floors are of marble. One side of any room intended for noonday retirement is generally laid open to a quadrangle, in the center of which dances the jet of a fountain. There is no furniture that can interfere with the cool, palace-like

emptiness of the apartments. A divan, which is a low and doubly broad sofa, runs round three walled sides of the rooms. A few Persian carpets, which ought to be called Persian rugs, for that is the word which indicates their shape and dimensions, are sometimes thrown about near the divan. They are placed without order, the one partly lapping over the other, and thus disposed they give to the room an appearance of uncaring luxury. Except these, there is nothing to obstruct the welcome air, and the whole of the marble floor, from one divan to the other and from the head of the chamber across to the murmuring fountain, is thoroughly open and free.

3. So simple as this is Asiatic luxury! The Oriental is not a contriving animal; there is nothing intricate in his magnificence. The impossibility of handing down property from father to son for any long period seems to prevent the existence of those traditions by which, with us, the refined modes of applying wealth are made known to its inheritors. The pasha and the peasant have the same tastes. The broad, cold marble floor; the simple couch; the air freshly waving through a shady chamber; a verse of the Koran emblazoned on the wall; the sight and sound of falling water; the cold, fragrant smoke of the nargile; and a small collection of wives and children in the inner apartments—all these, the utmost enjoyments of the grandee, are such as to be appreciable by the humblest Mussulman in the empire.

4. The chief places of public amusement, or rather of public relaxation, are the baths and the great *café;* this last, which is frequented at night by most of the wealthy men and by many of the humbler sort, consists of a number of sheds, very simply framed and built in a labyrinth of running streams, which foam and roar on every side. The place is lit up in the simplest manner by numbers of pale lamps strung upon loose cords, and so suspended from branch to branch that the light, though it looks so quiet

among the darkening foliage yet leaps and brightly flashes as it falls upon the troubled waters.

5. All around, upon the very edge of the torrents, groups of people are tranquilly seated. They all drink coffee and inhale the cold fumes of the nargile ; they talk very gently the one to the other, or else are silent. A father will sometimes have two or three of his boys around him ; but the joyousness of an Oriental child is all of the sober sort, and never disturbs the reigning calm of the land.

6. But its gardens are the delight—the delight and pride—of Damascus. They are not formal parterres which you might expect from the Oriental taste. Forest trees, tall and stately enough if you could see their lofty crests, yet leading a tussling life of it below, with their branches struggling against strong numbers of bushes and willful shrubs. The shade upon the earth is black as night. High, high above your head, and on every side all down to the ground, the thicket is hemmed in and choked up by the interlacing boughs, that droop with the weight of roses and load the slow air with their damask breath. There are no other flowers.

7. Here and there there are patches of ground made clear from the cover, and these are either carelessly planted with some common and useful vegetable or else are left free to the wayward ways of Nature, and bear rank weeds, moist-looking and cool to your eyes, and freshening the sense with their earthy and bitter fragrance. There is a lane opened through the thicket, so broad in some places that you can pass along side by side ; in some so narrow that you ought, if you can, to go on first, and hold back the boughs of the rose-trees. And through this wilderness there tumbles a loud, rushing stream, which is halted at last in the lowest corner of the garden, and there tossed up in a fountain by the side of the simple alcove.

Kinglake.

APPROACH TO JERUSALEM.

1. No view is more unique than that of Jerusalem as you approach it from the west. You look not so much at it as into it and over it. Though situated on a mountain top, it is surrounded by loftier mountains: on your right, the mountains of Judea, on which you stand; on the left, the Mount of Olives; and, far beyond, the mountain desert, at the foot of which the Jordan makes its hurried way to the Dead Sea.

2. Our first surprise was, that so famous a city should be so small. But this diminutiveness is itself a charm. You see in its entire circuit the lofty wall, with its beautiful parapets. Within the wall, clustering, but not crowded, you see, without shade or variation, the white roofs, balustrades, domes, and minarets of lofty palaces, and majestic churches and mosques. Though not especially conversant with the modern history and geography of the city, we had no difficulty in distinguishing the recently renewed and magnificent dome which protects the Holy Sepulchre. We also recognized, by its situation and its gorgeous though faded dome, the Mosque of Omar, which now crowns Mount Moriah, and stands upon the site of the ancient Temple of Solomon.

3. If one knew no more of the Gospel than what he recalls of his childhood's lessons, he could not mistake either the Plain of Bethlehem or the Mount of Olives. Nor could he mistake the significance of that solitary clump of olive and cypress trees, which, at the foot of the Mount of Olives, overhangs a long, low ravine, which divides Mount Zion from the Mount of Olives. That ravine is the Valley of Jehoshaphat, and that cloister of solemn shade is Gethsemane.

4. Forgetting for a moment the devastations of the

Turks, the Crusaders, the Saracens, the Romans, the Greeks, the Persians, the Babylonians, and the Egyptians, you accept this little Turkish town as the city which was built and adorned by Solomon, and as a perfect embodiment of the devotional idea of our faith, and do not wonder that, completed so long ago, it has been left to stand unchanged, unshaken, and alone, for the admiration and reverence of ages.

Seward's Travels.

PART XVII.

RUINS OF ANCIENT CITIES.

A VISIT TO BAALBEC.

1. By the middle of the afternoon we reached Baalbec. The distant view of the temple on descending the last slope of the anti-Lebanon is not calculated to raise one's expectations. On the green plain at the foot of the mountain you see a large square platform of masonry, upon which stand six columns, the body of the temple, and a quantity of ruined walls. As a feature in the landscape, it has a fine effect, but you find yourself pronouncing the speedy judgment, that "Baalbec without Lebanon would be rather a poor show." Having come to this conclusion, you ride down the hill with comfortable feelings of indifference. There are a number of quarries on the left hand; you glance at them with an expression that merely says: "Ah! I suppose they got the stones here," and so you saunter on, cross a little stream, that flows down from the modern village, pass a mill, return the stare of the quaint Arab miller who comes to the door to see you, and your horse is climbing a difficult path among the broken columns and friezes, before you think it worth while to lift your eyes to the piles above you.

2. Now, reassert your judgment if you dare! This is Baalbec: what have you to say? Nothing; but you amaz-

edly measure the torsos of great columns which are piled across one another in magnificent wreck ; vast pieces which have dropped from the entablature, beautiful Corinthian capitals, bereft of the last graceful curves of their acanthus leaves, and blocks whose edges are so worn away that they resemble enormous natural bowlders left by the deluge, till at last you look up to the six glorious pillars towering nigh a hundred feet above your head, and there is a sensation in your brain, which would be a shout if you could give utterance, of faultless symmetry and majesty, such as no conception of yours and no other conception of art can surpass.

3. I know of nothing so beautiful in all remains of ancient art as these six columns, except the colonnade of the Memnonium at Thebes, which is of much smaller proportions. From every position, and with all lights of the day or night, they are equally perfect, and carry your eyes continually away from the peristyle of the smaller temple, which is better preserved, and from the exquisite architecture of the outer courts and pavilions. The two temples of Baalbec stand on an artificial platform of masonry, a thousand feet in length, and from fifteen to thirty feet (according to the depression of the soil) in height. The larger one, which is supposed to have been a Pantheon, occupies the whole length of this platform. The entrance was at the north, by a grand flight of steps, now broken away, between two lofty and elegant pavilions which are still nearly entire. Then followed a spacious hexagonal court, and three grand halls, parts of which, with niches for statues, adorned with cornices and pediments, of elaborate design, still remain entire to the roof. This magnificent series of chambers was terminated at the southern extremity of the platform by the main temple, which had originally twenty columns on a side, similar to the six now standing.

4. The Temple of the Sun stands on a smaller and lower platform, which appears to have been subsequently added

to the greater one. The cella, or body of the temple, is complete except the roof, and of the colonnade surrounding it, nearly one half of its pillars are standing, upholding the frieze, entablature, and cornice, which altogether form probably the most ornate specimen of the Corinthian order of architecture now extant. Only four pillars of the superb portico remain, and the Saracens have nearly mined these by building a sort of watch-tower upon the architrave.

5. The same unscrupulous race completely shut up the portal of the temple with a blank wall, formed of the fragments they had hurled down, and one is obliged to creep through a narrow hole in order to reach the interior. Here the original doorway faces you—and I know not how to describe the wonderful design of its elaborate sculptured moldings and cornices. The genius of Greek art seems to have exhausted itself in inventing ornaments, which, while they should heighten the gorgeous effect of the work, must yet harmonize with the grand design of the temple. The enormous keystone over the entrance has slipped down, no doubt from the shock of an earthquake, and hangs within six inches of the bottom of the two blocks which uphold it on either side. When it falls, the whole entablature of the portal will be destroyed.

6. On its lower side is an eagle with outspread wings, and on the side-stones a genius with garlands of flowers exquisitely sculptured in bas-relief. Hidden among the wreaths of vines which adorn the jambs are the laughing heads of fauns. This portal was a continual study to me, every visit revealing new refinements of ornament which I had not before observed. The interior of the temple, with its rich Corinthian pilasters, its niches for statues, surmounted by pediments of elegant design, and its elaborate cornice, needs little aid of the imagination to restore to it its original perfection. Like that of Denderah in Egypt, the Temple of the Sun leaves upon the mind an impression

of completeness which makes you forget far grander remains.

7. But the most wonderful thing at Baalbec is the foundation platform upon which the temples stand. Even the colossal fabrics of ancient Egypt dwindle before this superhuman masonry. The platform itself, one thousand feet long, and averaging twenty feet in height, suggests a vast mass of stones ; but, when you come to examine the single blocks of which it is composed, you are crushed with their incredible magnitude. On the western side is a row of eleven foundation stones, each of which is thirty-two feet in length, twelve in height, and ten in thickness, forming a wall three hundred and fifty-two feet long ! But, while you are walking on thinking of the art which cut and raised these enormous blocks, you turn the southern corner and come upon *three* stones, the united length of which is *one hundred and eighty-seven feet*—two of them being sixty-two and the other sixty-three feet in length ! There they are, cut with faultless exactness, and so smoothly joined to each other that you can not force a cambric needle into their crevice.

8. There is one joint so perfect that it can only be discerned by the minutest search ; it is not even so perceptible as the junction of two pieces of paper which have been pasted together. In the quarry there still lies a finished block ready for transportation, which is sixty-seven feet in length. The weight of one of these masses has been reckoned at near nine thousand tons, yet they do not form the base of the foundation, but are raised upon other courses, fifteen feet from the ground. It is considered by some antiquarians that they are of a date greatly anterior to that of the temples, and were intended as the basement of a different edifice.

9. In the village of Baalbec there is a small circular Corinthian temple of very elegant design. It is not more

than thirty feet in diameter, and may have been intended as a tomb. A spacious mosque, now roofless and deserted, was constructed almost entirely out of the ruins of the temples. Adjoining the court-yard and fountain are five rows of ancient pillars, forty (the sacred number) in all, supporting light Saracenic arches. Some of them are marble, with Corinthian capitals, and eighteen are single shafts of red Egyptian granite. Beside the fountain lies a small broken pillar of porphyry, of a dark violet hue, and of so fine a grain that the stone has the soft rich luster of velvet. This fragment is the only thing I would carry away if I had the power.

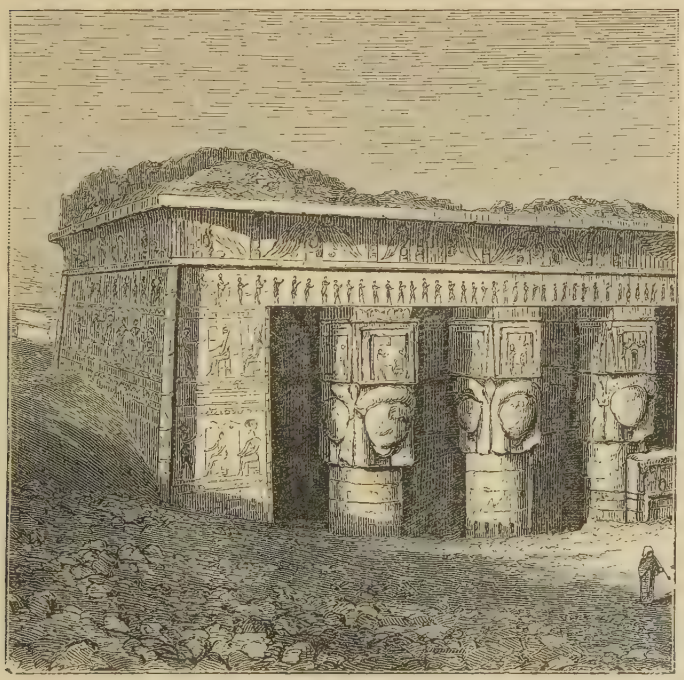
Bayard Taylor.

DENDERAH.

1. On the western bank of the Nile, opposite Kench, is the site of the city of Tentyra, famed for its temple of Athor. It is now called Denderah, from the modern Arab village. After breakfast we shipped ourselves and our donkeys across the Nile, and rode off in high excitement, to make our first acquaintance with Egyptian temples. The path led through a palm-grove, which in richness and beauty rivaled those of Mexico. The lofty shafts of the date and the vaulted foliage of the doum-palm, blended in the most picturesque groupage, contrasted with the lace-like texture of the flowering mimosa, and the cloudy boughs of a kind of gray cypress.

2. The turf under the trees was soft and green, and between the slim trunks we looked over the plain to the Libyan Mountains—a long train of rosy lights and violet shadows. Out of this lovely wood we passed between magnificent fields of durra and the castor-oil bean, fifteen feet in height, to a dyke which crossed the meadows to Den-

derah. The leagues of rank grass on our right rolled away to the Desert in shining billows, and the fresh west wind wrapped us in a bath of intoxicating odors. In the midst of this green and peaceful plain rose the earthy mounds of Tentyra, and the portico of the temple, almost buried be-



Part of the Temple of Denderah.

neath them, stood like a beacon, marking the boundary of the Desert.

3. We galloped our little animals along the dyke, over heaps of dirt and broken bricks, among which a number of Arabs were burrowing for nitrous earth, and dismounted at a small pylon, which stands two or three hundred paces in

front of the temple. The huge jambs of sandstone, covered with sharply-cut hieroglyphics and figures of the Egyptian gods, and surmounted by a single block, bearing the mysterious winged globe and serpent, detained us but a moment, and we hurried down what was once the dromos of the temple, now represented by a double wall of unburnt bricks.

4. The portico, more than a hundred feet in length, and supported by six columns united by screens of masonry, no stone of which, or of the columns themselves, is unsculptured, is massive and imposing, but struck me as being too depressed to produce a very grand effect. What was my astonishment, on arriving at the entrance, to find that I had approached the temple on a level with half its height, and that the pavement of the portico was as far below as the scrolls of its cornice were above me. The six columns I had seen covered three other rows, of six each, all adorned with the most elaborate sculpture and exhibiting traces of the brilliant coloring which they once possessed.

5. The entire temple, which is in an excellent state of preservation, except where the hand of the Coptic Christian has defaced its sculptures, was cleaned out by order of Mohammed Ali; and as all its chambers, as well as the roof of enormous sandstone blocks, are entire, it is considered one of the most complete relics of Egyptian art.

6. I find my pen at fault when I attempt to describe the impression produced by the splendid portico. The twenty-four columns, each of which is sixty feet in height, and eight feet in diameter, crowded upon a surface of one hundred feet by seventy, are oppressive in their grandeur. The dim light, admitted through the half closed front, which faces the north, spreads a mysterious gloom around these mighty shafts, crowned with the fourfold visage of Athor, still rebuking the impious hands that have marred her solemn beauty.

7. On the walls, between columns of hieroglyphics and the cartouches of the Cæsars and the Ptolemies, appear the principal Egyptian deities—the rigid Osiris, the stately Isis, and the hawk-headed Orus. Around the bases of the columns spring the leaves of the sacred lotus, and the dark-blue ceiling is spangled with stars, between the wings of the divine emblem. The sculptures are all in raised relief, and there is no stone in the temple without them.

8. The portico opens into a hall, supported by six beautiful columns, of smaller proportions, and lighted by a square aperture in the solid roof. On either side are chambers connected with dim and lofty passages, and beyond are the sanctuary and various other apartments, which receive no light from without. We examined their sculptures by the aid of torches, and our Arab attendants kindled large fires of dry corn-stalks, which cast a strong red light on the walls. The temple is devoted to Athor, the Egyptian Venus, and her image is everywhere seen receiving the homage of her worshipers. Even the dark staircase, leading to the roof—up which we climbed over heaps of sand and rubbish—is decorated throughout with processions of symbolical figures. The drawing has little of that grotesque stiffness which I expected to find in Egyptian sculptures, and the execution is so admirable in its gradations of light and shade as to resemble, at a little distance, a monochromatic painting.

9. Around the temple and over the mounds of the ancient city are scattered the ruins of the Arab village which the inhabitants suddenly deserted, without any apparent reason, two or three years previous to our visit. Behind it stretches the yellow sand of the Desert. The silence and aspect of desertion harmonize well with the spirit of the place, which would be much disturbed were one beset, as is usual in the Arab towns, by a gang of naked beggars and barking wolf-dogs.

Bayard Taylor.

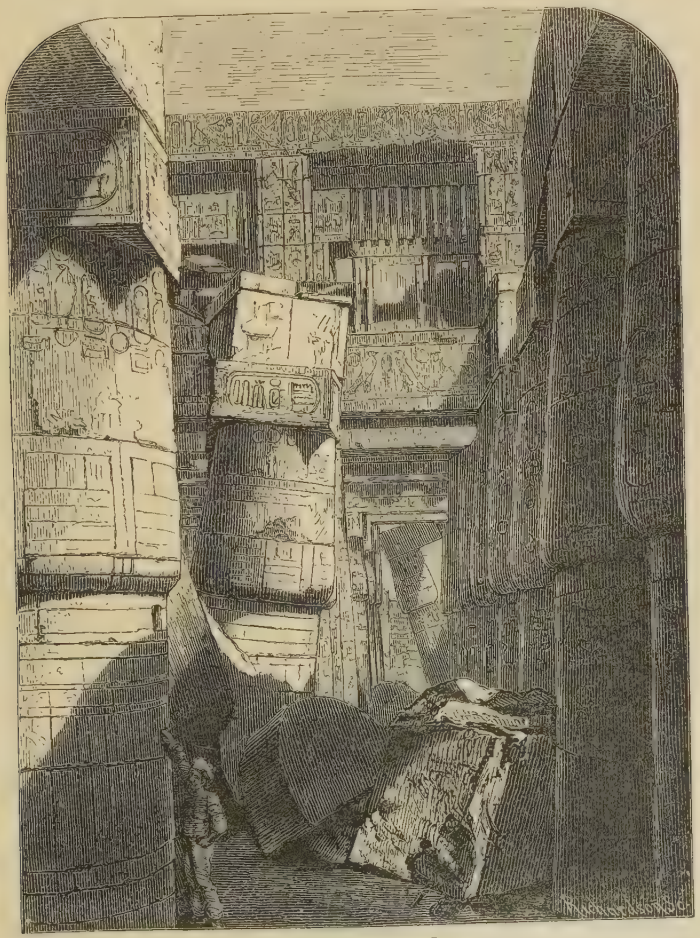
KARNAK.

1. Our next visit was to Karnak, the greatest ruin in the world, the crowning triumph of Egyptian power and Egyptian art. Except a broken stone here and there protruding through the soil, the plain is as desolate as if it had never been conscious of a human dwelling, and only on reaching the vicinity of the mud hamlet of Karnak can the traveler realize that he is in Thebes. Here the camel-path drops into a broad, excavated avenue, lined with fragments of sphinxes and shaded by starveling acacias. As you advance, the sphinxes are better preserved and remain seated on their pedestals, but they have all been decapitated. Though of colossal proportions, they are seated so close to each other that it must have required nearly two thousand to form the double row to Luxor.

2. The avenue finally reaches a single pylon, of majestic proportions, built by one of the Ptolemies, and covered with hieroglyphics. Passing through this, the sphinxes lead you to another pylon, followed by a pillared court and a temple built by the later Ramessids. This, I thought, while my friend was measuring the girth of the pillars, is a good beginning for Karnak, but is certainly much less than I expect. "Come this way!" called the guide, as if reading my mind, and led me up heaps of rubbish to the roof and pointed to the north.

3. Ah, there was Karnak! Had I been blind up to this time, or had the earth suddenly heaved out of her breast the remains of the glorious temple? From all parts of the plain of Thebes I had seen it in the distance—a huge propylon, a shattered portico, and an obelisk rising above the palms. Whence this wilderness of ruins, spreading so far as to seem a city rather than a temple—pylon after pylon, tumbling into enormous cubes of stone, long colonnades,

supporting fragments of Titanic roofs, obelisks of red granite, and endless walls and avenues, branching out to



Columns at Karnak.

isolated portals? Yet they stood as silently amid the ac-

cumulated rubbish of nearly four thousand years, and the sunshine threw its yellow luster as serenely over the despoiled sanctuaries, as if it had never been otherwise since the world began. Figures are of no use in describing a place like this, but, since I must use them, I may say that the length of the ruins before us, from west to east, was twelve hundred feet, and that the total circumference of Karnak, including its numerous pylæ, or gateways, is a mile and a half.

4. We mounted and rode with fast-beating hearts to the western or main entrance, facing the Nile. The two towers of the propylon—pyramidal masses of solid stone—are three hundred and twenty-nine feet in length, and the one which is least ruined is nearly one hundred feet in height. On each side of the sculptured portal connecting them is a tablet, left by the French army, recording the geographical position of the principal Egyptian temples. We passed through and entered an open court, more than three hundred feet square, with a corridor of immense pillars on each side, connecting it with the towers of a second pylon, nearly as gigantic as the first.

5. A colonnade of lofty shafts, leading through the center of the court, once united the two entrances, but they have all been hurled down and lay as they fell, in long lines of disjointed blocks, except one, which holds its solitary lotus-bell against the sky. Two mutilated colossi of red granite still guard the doorway, whose lintel-stones are forty feet in length. Climbing over the huge fragments which have fallen from above and almost blocked up the passage, we looked down into the grand hall of the temple.

6. I knew the dimensions of this hall beforehand; I knew the number and size of the pillars, but I was no more prepared for the reality than those will be who may read this account of it and afterward visit Karnak for themselves. It is the great good luck of travel that many things

must be seen to be known. Nothing could have compensated for the loss of that overwhelming confusion of awe, astonishment, and delight, which came upon me like a flood. I looked down an avenue of twelve pillars—six on each side—each of which was thirty-six feet in circumference and nearly eighty feet in height. Crushing as were these ponderous masses of sculptured stone, the spreading bell of the lotus-blossoms which crowned them clothed them with an atmosphere of lightness and grace. In front, over the top of another pile of colossal blocks, two obelisks rose sharp and clear, with every emblem legible on their polished sides.

7. On each side of the main aisle are seven other rows of columns—*one hundred and twenty-two* in all—each of which is about fifty feet in height and twenty-seven in circumference. They have the Osiride form without capitals, and do not range with the central shafts. In the efforts of the conquerors to overthrow them, two have been hurled from their places and thrown against neighboring ones, where they still lean, as if weary with holding up the roof of massive sandstone. I walked alone through this hall, trying to bear the weight of its unutterable majesty and beauty. That I had been so oppressed by Denderah, seemed a weakness which I was resolved to conquer, and I finally succeeded in looking on Karnak with a calmness more commensurate with its sublime repose—but not by daylight. My ride back to Luxor, toward evening, was the next best thing after Karnak.

8. It was precisely full moon, and I determined on visiting Karnak again before leaving. There was no one but the guide and I, he armed with a long spear and I with my pistols in my belt. There was a wan haze in the air, and a pale halo around the moon, on each side of which appeared two faint mock-moons. It was a ghostly light, and the fresh north wind, coming up the Nile, rustled solemnly in

the palm-trees. We trotted silently to Karnak, and leaped our horses over the fragments until we reached the foot of the first obelisk. Here we dismounted and entered the grand hall of pillars.

9. There was no sound in all the temple, and the guide, who seemed to comprehend my wish, moved behind me as softly as a shadow, and spoke not a word. It needs this illumination to comprehend Karnak. The unsightly rubbish has disappeared; the rents in the roof are atoned for by the moonlight they admit; the fragments shivered from the lips of the mighty capitals are only the crumpled edges of the flower; a maze of shadows hides the desolation of the courts, but every pillar and obelisk, pylon and propylon, is glorified by the moonlight. The soul of Karnak is soothed and tranquillized. Its halls look upon you no longer with an aspect of pain and humiliation. Every stone seems to say: "I am not fallen, for I have defied the ages. I am a part of that grandeur which has never seen its peer, and I shall endure for ever, for the world has need of me."

Bayard Taylor.

THE ROCK CITY OF PETRA.

1. Petra, the excavated city, the long-lost capital of Edom, in the Scriptures and profane writings, in every language in which its name occurs, signifies a rock; and, through the shadows of its early history, we learn that its inhabitants lived in natural clefts or excavations made in the solid rock.

2. And this was the city at whose door I now stood. In a few words, this ancient and extraordinary city is situated within a natural amphitheatre of two or three miles in circumference, encompassed on all sides by rugged mountains, five or six hundred feet in height. The whole of this

area is now a waste of ruins, dwelling-houses, palaces, temples, and triumphal arches, all prostrate together in undistinguishable confusion. The sides of the mountain are cut smooth in a perpendicular direction, and filled with long and continued ranges of dwelling-houses, temples, and tombs, excavated with vast labor out of the solid rock ; and, while their summits present Nature in her wildest and most savage form, their bases are adorned with all the beauty of architecture and art, with columns, and porticoes, and pediments, and ranges of corridors, enduring as the mountains out of which they are hewn, and fresh as if the work of a generation scarcely yet gone by.

3. Nothing can be finer than the immense rocky rampart which incloses the city. Strong, firm, and immovable as Nature itself, it seems to deride the walls of cities and the puny fortifications of skillful engineers. The only access is by clambering over this wall of stones, practicable only in one place, or by one entrance, the most extraordinary that Nature, in her wildest freaks, has ever framed. The loftiest portals ever raised by the hands of man, the proudest monuments of architectural skill and daring, sink into insignificance by the comparison. It is, perhaps, the most wonderful object in the world, except the ruins of the city to which it forms the entrance.

4. For about two miles this passage lies between high and precipitous ranges of rocks, from five hundred to a thousand feet in height, standing as if torn asunder by some great convulsion, and barely wide enough for two horsemen to pass abreast. A swelling stream rushes between them ; the summits are wild and broken ; in some places overhanging the opposite sides, casting the darkness of night upon the narrow defile ; then receding and forming an opening above, through which a strong ray of light is thrown down, and illuminates with the blaze of day the frightful chasm below.

5. Wild fig-trees, oleanders, and ivy were growing out of the rocky sides of the cliffs hundreds of feet above our heads; the eagle was screaming above us; all along were the open doors of the tombs, forming the great Necropolis of the city; and at the extreme end was a large open space, with a powerful body of light thrown down upon it, and exhibiting in one full view the façade of a beautiful temple, hewn out of the rock, with rows of Corinthian columns and ornaments standing out fresh and clear, as if but yesterday from the hands of the sculptor. Though coming directly from the banks of the Nile, where the preservation of the temples excites the admiration and astonishment of every traveler, we were roused and excited by the extraordinary beauty and excellent condition of the great temple at Petra.

6. The whole temple, its columns, ornaments, porticoes, and porches are cut out from and form part of the solid rock; and this rock, at the foot of which the temple stands like a mere point, towers several hundred feet above, its face cut smooth to the very summit, and the top remaining wild and misshapen as Nature made it. The whole area before the temple is perhaps an acre in extent, inclosed on all sides except at the narrow entrance, and an opening to the left of the temple, which leads into the area of the city by a pass through perpendicular rocks five or six hundred feet in height.

7. Leaving the temple and the open area on which it fronts, and following the stream, we entered another defile much broader than the first, on each side of which were ranges of tombs, with sculptured doors and columns; and on the left, in the bosom of the mountain, hewn out of the solid rock, is a theatre, circular in form, the pillars in front fallen, and containing thirty-three rows of seats, capable of containing more than three thousand persons. Above the corridor was a range of doors opening to chambers in the

rocks, the seats of princes and the wealthiest inhabitants of Petra, and not unlike a row of private boxes in a modern theatre.

8. The whole theatre is at this day in such a state of preservation that, if the tenants of the tombs around could once more rise into life, they might take their own places on its seats, and listen to the declamation of their favorite player. To me the stillness of a ruined city is nowhere so impressive as when sitting on the steps of its theatre, once thronged with the gay and pleasure-seeking, but now given up to solitude and desolation. Day after day these seats had been filled, and the now silent rocks had echoed to the applauding shout of thousands, and little could an ancient Edomite imagine that a solitary stranger, from a then unknown world, would one day be wandering among the ruins of his proud and wonderful city, meditating upon the fate of a race that has for ages passed away.

9. Where are ye, inhabitants of this desolate city? ye who once sat on the seats of this theatre—the young, the high-born, the beautiful, and the brave; who once rejoiced in your riches and power, and lived as if there was no grave? Where are ye now? Even the very tombs, whose open doors are stretching away in long ranges before the eyes of the wondering traveler, can not reveal the mystery of your doom; your dry bones are gone; the robber has invaded your graves, and your very ashes have been swept away to make room for the wandering Arab of the desert.

John L. Stephens.

PART XVIII.

REMARKABLE MODERN WORKS.

THE DIKES OF HOLLAND.

1. Along the greater length of the western coast of Holland a line of low sand-hills serves to partially separate the main sea from the Hollow-land, which is somewhat lower in surface; and wherever that line of hills subsides, then the work of the dike-builders continues the separation which the natural wall only half accomplished. Vast lines of earth-banks, from twenty to forty feet in height, and from twenty to a hundred feet in thickness, generally faced on the sea-side with massive walls of brick and stone, have been raked together and maintained at an incomparable cost of labor and watchfulness.

2. Huge dams have been swung across the mouths of rivers to govern the level of their variable waters; and from those dams, which are often the nuclei of great cities, more lines of earth walls, of all heights below a hundred feet, and of all widths less than a quarter of a mile, stretch away along up each bank of each river, creek, and bayou, and shut them into bounds; give docks and ways to shipping, roads and canals to travelers, forts of defense to cities; give broad fertile plains to agricultural people; give fruitful, happy homes to three millions of intelligent Hollow-landers.

3. Centuries of unremitting care have hardened these main dikes into the most substantial parts of the country; but where it is all so spongy, and so constantly drenched by a moist climate, they will never acquire that solidity which will leave them above the need of attention.

4. The oldest and firmest of the great lines of dikes must still maintain great piles of willow boughs ready for instant application to any opening crevasse; and must still maintain watchmen—watchmen who can not at all times echo the salutation that one receives of the country, nor the cry which one still hears from the night patrol of the old Dutch cities, "All's well." A sudden rush of wind piling the waters to an extraordinary height over some low or softened portion of the separating wall startles a whole country from its quiet.

5. As in Constantinople the first alarm of fire calls the water-carriers and spare police, the second the proprietors and officers of State, and the third the Sultan himself to the scene of disaster, so in Holland continued rush of water admits of no idle spectators, but calls every hand capable of wielding a spade or bearing a bundle of rushes to aid in preventing devastation worse than conflagration. Sometimes the sea has proved ungovernable in its caprice, has swept over and retained what was before inhabited country.

6. Fifteen years ago, in the southern part of the province of North Holland, there were forty-five thousand acres of first-rate mud aching to be turned into Dutch cheeses for foreign markets, but which were smothered out of useful existence by just as many acres of brackish water twelve feet deep. About the same time there were divers Dutch fingers itching to feel of the guilders that forty-five thousand acres of rich meadows and pastures would produce; and fifteen years ago government set about relieving that aching and itching.

7. There was a broad, high dike around it to keep this

Haarlemmer-Meer in position, which was kept up by certain companies who hold certain chartered privileges for draining the lands of the surrounding country and exacting pay for the same. Even the government might not interfere with the privileges of these companies, and they objected to any movement of the waters of the lake which might prove detrimental to their interests.

8. The government first erected three steam mills for the Rhinelanders' use; thus removing the first obstacle to the drying up of Haarlem Lake. The first mill was built at Spaarndam, and lifted water out of canals that came down by the sides of the lake, into the Y Zee, a height of three feet, at the rate of sixteen thousand cubic yards a minute, and commenced the removal of a sheet of water sixteen miles long, eight miles wide, and twelve feet deep.

9. The next operations were to open and securely dike a canal a hundred feet wide all around outside of the lake dike, to connect the canal with the smaller canals, into which 350 windmills lifted water from the different levels around the lake, and to connect it with the sluices that let the Y Zee into the Holland Yssel, a bayou of the Rhine. They next set at work, at different points on the margin of the lake, three steam mills of 500 horse-power each, that work twenty-eight pumps, lifting altogether 56,000 gallons at a stroke, or 336,000 gallons a minute, fifteen feet high; and Haarlemmer-Meer began to change to Haarlemmer-Meer *Polder*.

10. As the dry land began to appear, the huge stacks of willow boughs bound in bundles, that had been gathered from all parts of the country, began to be laid in long rows up through the middle, and the mud was scooped up and thrown over and between these rows to form banks for canals and to lay roads upon. After a layer of mud came another layer of willow boughs, then another layer of mud, and so on; and after the banks had hardened suffi-

ciently to retain it, came gravel from the German rivers to spread over them, till fifty miles of broad, deep canal, and a hundred miles of passable roads, separated Haarlem Lake Polder into a dozen grand divisions; then those dozen divisions were subdivided by such smaller canals in different directions as the levels seemed to demand, and Haarlem Lake was ready for sale.

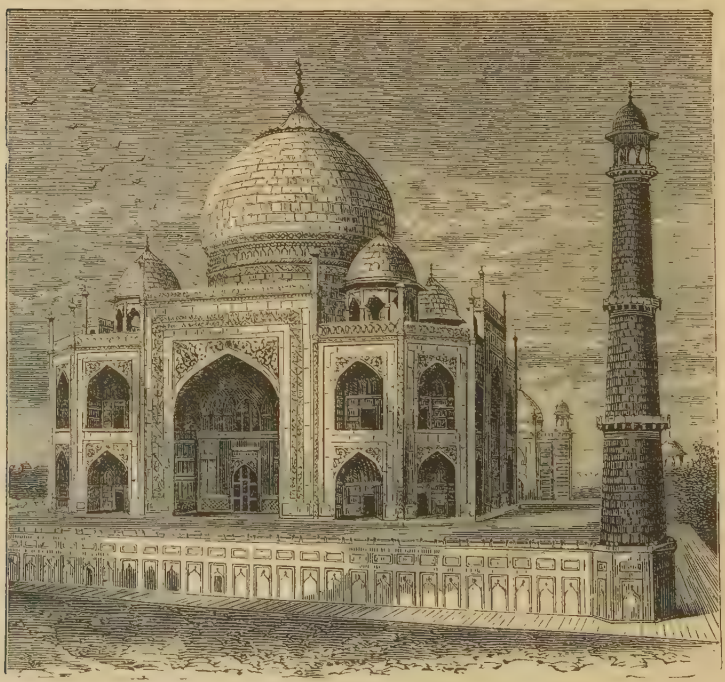
THE TAJ MAHAL AT AGRA.

1. THE history and associations of the Taj Mahal are entirely poetic. It is a work inspired by Love, and consecrated to Beauty. Shah-Jehan, the "Selim" of Moore's poem, erected it as a mausoleum over his queen, Noor-Jehan —"the Light of the World"—whom the same poet calls Noor-Mahal, "the Light of the Harem," or more properly, "Palace." She is reputed to have been a woman of surpassing beauty, and of great wit and intelligence. Shah-Jehan was inconsolable for her loss, and has immortalized her memory in a poem, the tablets of which are marble, and the letters jewels. Few persons, of the thousands who sigh over the pages of "Lalla Rookh," are aware that the "Light of the Harem" was a real personage, and that her tomb is one of the wonders of the world.

2. The Taj is built on the bank of the Jumna, rather more than a mile to the eastward of the Fort of Agra. It is approached by a handsome road, cut through the mounds left by the ruins of ancient palaces. The entrance is a superb gateway of sandstone, inlaid with ornaments and inscriptions from the Koran, in white marble. Outside of this grand portal, however, is a spacious quadrangle of solid masonry, with an elegant structure intended as a caravansary, on the opposite side. Whatever may be the visitor's

impatience, he can not help pausing to notice the fine proportions of these structures, and the rich and massive style of their architecture.

3. Passing under the open demi-vault, whose arch hangs high above you, an avenue of dark Italian cypresses appears before you. Down its center sparkles a long row of fount-



Taj Mahal.

ains, each casting up a single slender jet. On both sides, the palm, the banyan, and the feathery bamboo mingle their foliage; the song of birds meets your ear, and the odor of roses and lemon-flowers sweetens the air. Down such a vista, and over such a foreground, rises the Taj.

4. It is an octagonal building, or rather a square with the corners truncated, and each side precisely similar. It stands upon a lofty platform, or pedestal, with a minaret at each corner, and this, again, is lifted on a vast terrace of solid masonry. An Oriental dome, swelling out boldly from the base into nearly two thirds of a sphere, and tapering at the top into a crescent-tipped spire, crowns the edifice, rising from its center, with four similar, though much smaller domes, at the corners.

5. On each side there is a grand entrance, formed by a single pointed arch, rising nearly to the cornice, and two smaller arches (one placed above the other) on either hand. The height of the building, from its base to the top of the dome, is two hundred and sixty-two feet, and of the minarets about two hundred feet. But no words can convey an idea of the exquisite harmony of the different parts, and the grand and glorious effect of the whole structure, with its attendant minarets.

6. The material is of the purest white marble, little inferior to that of Carrara. It shines so dazzlingly in the sun that you can scarcely look at it near at hand, except in the morning and evening. Every part—even the basement, the dome, and the upper galleries of the minarets—is inlaid with ornamental designs in marble of different colors, principally a pale brown and a bluish violet variety. Great as are the dimensions of the Taj, it is as laboriously finished as one of those Chinese caskets of ivory and ebony which are now so common in Europe.

7. Around all the arches of the portals and the windows —around the cornice and the domes—on the walls and in the passages, are inlaid chapters of the Koran, the letters being exquisitely formed of black marble. It is asserted that the whole of the Koran is thus inlaid in the Taj, and I can readily believe it to be true. The building is perfect in every part. Any dilapidations it may have suf-

fered are so well restored that all traces of them have disappeared.

8. I ascended to the base of the building—a gleaming marble platform, almost on a level with the tops of the trees in the garden. Before entering the central hall, I descended to the vault where the beautiful Noor-Jehan is buried. A sloping passage, the walls and floor of which have been so polished by the hands and feet of thousands that you must walk carefully to avoid sliding down, conducts to a spacious vaulted chamber.

9. There is no light but what enters the door, and this falls directly upon the tomb of the Queen in the center. Shah-Jehan, whose ashes are covered by a simpler cenotaph, raised somewhat above hers, sleeps by her side. The vault was filled with the odors of rose, jasmine, and sandalwood, the precious attars of which are sprinkled upon the tomb. Wreaths of beautiful flowers lay upon it, or withered around its base.

10. These were the true tombs, the monuments for display being placed in the grand hall above, which is a lofty rotunda, lighted both from above and below by screens of marble, wrought in filigree. It is paved with blocks of white marble and jasper, and ornamented with a wainscoting of sculptured tablets, representing flowers. The tombs are sarcophagi of the purest marble, exquisitely inlaid with blood-stone, agate, carnelian, lapis lazuli, and other precious stones, and surrounded with an octagonal screen six feet high, in the open tracery of which lilies, irises, and other flowers are interwrought with the most intricate ornamental designs. This is also of marble, covered with precious stones.

11. The dome of the Taj contains an echo more sweet, pure, and prolonged than that in the Baptistry of Pisa, which is the finest in Europe. A single musical tone, uttered by the voice, floats and soars overhead, in a long,

delicious undulation, fainting away so slowly that you hear it after it is silent, as you see, or seem to see, a lark you have been watching, after it is swallowed up in the blue of heaven. I pictured to myself the effect of an Arabic or Persian lament for the lovely Noor-Jehan, sung over her tomb. The responses that would come from above in the pauses of the song must resemble the harmonies of angels in Paradise.

12. The hall, notwithstanding the precious materials of which it is built and the elaborate finish of its ornaments, has a grave and solemn effect, infusing a peaceful serenity of mind, such as we feel when contemplating a happy death. Stern, unimaginative persons have been known to burst suddenly into tears on entering it, and whoever can behold the Taj without feeling a thrill that sends the moisture to his eye, has no sense of beauty in his soul.

13. The Taj truly is, as I have already said, a poem. It is not only a pure architectural type, but also a creation which satisfies the imagination, because its characteristic is Beauty. Did you ever build a Castle in the Air? Here is one, brought down to earth, and fixed for the wonder of ages; yet so light it seems, so airy, and, when seen from a distance, so like a fabric of mist and sunbeams, with its great dome soaring up, a silvery bubble about to burst in the sun, that, even after you have touched it, and climbed to its summit, you almost doubt its reality. The four minarets which surround it are perfect; no other epithet will describe them. You can not conceive of their proportions being changed in any way without damage to the general effect.

14. On one side of the Taj is a mosque with three domes, of red sandstone, covered with mosaic of white marble. Now, on the opposite side, there is a building precisely similar, but of no use whatever, except as a balance to the mosque, lest the perfect symmetry of the whole

design should be spoiled. This building is called the *jowab*, or "answer." Nothing can better illustrate the feeling for proportion which prevailed in those days—and proportion is Art.

Bayard Taylor.

THE SLIDE AT ALPNACH.

1. Among the forests which flank many of the lofty mountains of Switzerland, some of the finest timber is found in positions almost inaccessible. The expense of roads, even if it were possible to make them in such situations, would prevent the inhabitants from deriving any advantages from these almost inexhaustible supplies. Placed by nature at a considerable elevation above the spot on which they are required, they are precisely in fit circumstances for the application of machinery; and the inhabitants constantly avail themselves of it, to enable the force of gravity to relieve them of some portion of their labor.

2. The inclined planes which they have established in various forests, by which the timber has been sent down to the water-courses, must have excited the admiration of every traveler; and these slides, in addition to the merit of simplicity, have that of economy, as their construction requires scarcely anything beyond the material which grows upon the spot. Of all these specimens of carpentry, the Slide of Alpnach was by far the most considerable, both from its great length, and from the almost inaccessible position from which it descended.

3. The Slide of Alpnach is formed entirely of about twenty-five thousand large pine-trees, deprived of their bark, and united together in a very ingenious manner, without the aid of iron. It is about three leagues, or forty-four thousand English feet long, and terminates in the lake

of Lucerne. It has the form of a trough, about six feet broad, and from three to six feet deep. Its bottom is formed of three trees, the middle one of which has a groove cut out in the direction of its length, for receiving small rills of water, which are conducted into it from various places, for the purpose of diminishing the friction. The whole of the slide is sustained by about two thousand supports; and in many places it is attached, in a very ingenious manner, to the rugged precipices of granite.

4. The direction of the slide is sometimes straight, and sometimes zigzag, with an inclination of from 10° to 18°. It is often carried along the sides of hills and the flanks of precipitous rocks, and sometimes passes over their summits. Occasionally it goes underground, and at other times it is conducted over the deep gorges by scaffoldings one hundred and twenty feet in height.

5. The boldness which characterizes this work, the sagacity displayed in all its arrangements, and the skill of the engineer, have excited the wonder of every person who has seen it. Before any step could be taken in its erection, it was necessary to cut several thousand trees to obtain a passage through the impenetrable thickets; and, as the workmen advanced, men were posted at certain distances to point out the road for their return, and to discover, in the gorges, the places where the piles of wood had been established.

6. M. Rupp, the engineer, was himself obliged, more than once, to be suspended by cords, in order to descend precipices many hundred feet high; and, in the first months of the undertaking, he was attacked with a violent fever, which deprived him of the power of superintending his workmen. Nothing, however, could diminish his invincible perseverance. He was carried every day to the mountain in a barrow, to direct the labors of the workmen, which was absolutely necessary, as he had scarcely two good

carpenters among them all; the rest having been hired by accident, without any knowledge which such an undertaking required. M. Rupp had also to contend against the prejudices of the peasantry. He was supposed to have communion with the devil. He was charged with heresy, and every obstacle was thrown in the way of the enterprise, which they regarded as absurd and impracticable. All these difficulties, however, were surmounted, and he had at last the satisfaction of observing the trees descend from the mountain with the rapidity of lightning.

7. The larger pines, which were about a hundred feet long, and ten inches thick at their smaller extremity, ran through the space of *three leagues*, or nearly *nine miles*, in *two minutes and a half*, and during their descent they appeared to be only a few feet in length. The arrangements for this part of the operation were extremely simple. From the lower end of the slide to the upper end, where the trees were introduced, workmen were posted at regular distances, and, as soon as everything was ready, the workmen at the lower end of the slide cried out to the one above him, "Lachez" (Let go). The cry was repeated from one to another, and reached the top of the slide in *three minutes*.

8. The workman at the top of the slide then cried out to the one below him, "Il vient" (It comes), and the tree was immediately launched down the slide, preceded by the cry, which was repeated from post to post. As soon as the tree had reached the bottom, and plunged into the lake, the cry of "Lachez" was repeated as before, and a new tree was launched in a similar manner. By these means a tree descended every five or six minutes, provided no accident happened to the slide, which sometimes took place, but which was instantly repaired when it did.

9. In order to show the enormous force which the trees acquired from the great velocity of their descent, M. Rupp made arrangements for causing some of the trees to spring

from the slide. They penetrated, by their thickest extremities, no less than from eighteen to twenty-four feet into the earth; and one of the trees having by accident struck against the other, it instantly cleft it through its whole length, as if it had been struck by lightning.

ICE-HILLS IN RUSSIA.

1. THE most striking winter spectacle of St. Petersburg to a foreigner is that of the ice-mountains; the great Place of Admiralty is given up to the popular celebrations, and filled with refreshment booths, swings, and slides. To form these ice-mountains, a narrow scaffold is raised to the height of some thirty or forty feet. This scaffold has on one side steps for the purpose of ascending it; on the other it slopes off, steeply at first, and then more gradually, until it finally terminates on a level. Upon this long slope blocks of ice are laid, over which water is poured, which, by freezing, unites the blocks and furnishes a uniform surface, down which the merry crowd slide upon sledges, or more frequently upon blocks of smooth ice cut into appropriate form.

2. Two of these mountains usually stand opposite and fronting each other, their tracks lying close together, side by side.

3. This is a national amusement all over Russia. Ice-mountains are raised in the court-yards of all the chief residents in the capital. And an imitation of them, for summer use, covered with some kind of polished wood, instead of ice, is often found in the walls of private dwellings. In the Imperial Palace is such a slide built of mahogany.

4. Formerly the swings, ice-mountains, and temporary theatres were erected upon the frozen plain of the Neva. But some years since the ice gave way under the immense pressure, and a large number of the revelers were drowned. Since that time the great square of the Admiralty has been devoted to this purpose. For days previous, long trains of sledges are seen thronging to the spot, bearing timbers, poles, planks, huge blocks of ice, and all the materials necessary for the erection of booths, theatres, swings, and slides. These temporary structures are easily and speedily reared. A hole is dug in the frozen ground, into which the end of a post is placed. It is then filled with water, which, under the influence of a Russian February, binds it in its place as firmly as though it were leaded into a solid rock.

5. The carnival commences on the first Sunday of the Butter week, and all St. Petersburg gives itself up to sliding and swinging, or to watching the sliding and swinging of others. By a wise regulation, eating and drinking shops are not allowed in the square, and the staple potable and comestibles are tea, cake, and nuts. Few more animated and stirring sights are to be seen than the Admiralty Square at noon, when the mirth is at the highest among the lower orders, and when all the higher classes make their appearance, driving in regular line along a broad space, in front of the booths, reserved for the equipages.

PART XIX.

REMARKABLE ANCIENT WORKS.

A VISIT TO THE PYRAMIDS.

1. The base of the great pyramid is about eight hundred feet square, covering a surface of about eleven acres, according to the best measurement, and four hundred and sixty-one feet high. Even as I walked around it, and looked up at it from the base, I did not feel its immensity until I commenced ascending; then, having climbed some distance up, when I stopped to breathe, and looked down upon my friend below, who was dwindled to insect size, and up at the great distance between me and the summit—then I realized in all their force the huge dimensions of this giant work. It took me twenty minutes to mount to the summit—about the same time that it had required to mount the cones of Etna and Vesuvius.

2. The ascent is not particularly difficult, at least with the assistance of the Arabs. There are two hundred and six tiers of stone, from one to four feet in height, each two or three feet smaller than the one below, making what are called steps. Indeed, for the most part I was obliged to climb with my knees, deriving great assistance from the step which one Arab made for me with his knee, and the helping hand of another above.

3. No man can stand on the top of the great pyramid

of Cheops and look out upon the dark mountains of Mokattem bordering the Arabian desert; upon the ancient cities of the Pharaohs, its domes, its mosques, and minarets, glittering in the light of a vertical sun; upon the rich valley of the Nile, and the "river of Egypt" rolling at his feet;

The Pyramids of Gizeh.

the long range of pyramids and tombs extending along the edge of the desert to the ruined city of Memphis; and the boundless and eternal sands of Africa, without considering that moment an epoch not to be forgotten. Thousands of years roll through his mind, and thought recalls the men who built them, their mysterious uses, the poets, historians, philosophers, and warriors who have gazed upon them with wonder like his own.

4. The descent I found extremely easy; many persons complain of the dizziness caused by looking down from such a height, but I did not find myself so affected; and,

though the donkeys at the base looked like flies, I could almost have danced down the mighty sides.

5. The great pyramid is supposed to contain six millions of cubic feet of stone, and a hundred thousand men are said to have been employed twenty years in building it. The four angles stand exactly in the four points of the compass, inducing the belief that it was intended for other purposes than those of a sepulchre. The entrance is on the north side. The sands of the desert have encroached upon it, and, with the fallen stones and rubbish, have buried it to the sixteenth step. Climbing over this rubbish, the entrance is reached : a narrow passage three and a half feet square, lined with broad blocks of polished granite, descending in the interior at an angle of twenty-seven degrees for ninety-two feet ; then the passage turns to the right, and winds upward to a steep ascent of eight or nine feet, and then falls into the natural passage, which is five feet high and one hundred feet long, forming a continued ascent to a sort of landing-place ; in a small recess of this is the orifice or shaft called the Well. Moving onward through a long passage, the explorer comes to what is called the Queen's Chamber, seventeen feet long, fourteen wide, and twelve high.

6. I entered a hole opening from this crypt, and, crawling on my hands and knees, came to a large opening, not a regular chamber, and now cumbered with falling stones. Immediately above this, ascending by an inclined plane lined with highly polished granite, and about one hundred and twenty feet in length, and mounting a short space by means of holes cut in the sides, I entered the King's Chamber, thirty-seven feet long, seventeen feet wide, and twenty feet high. The walls of the chambers are of red granite, highly polished, each stone reaching from the floor to the ceiling ; and the ceiling is formed of nine large slabs of polished granite, extending from wall to wall.

7. At one end of the chamber stands a sarcophagus, also of red granite ; its length is seven feet six inches, depth three and a half, breadth three feet three inches. Here is supposed to have slept one of the great rulers of the earth, the king of the then greatest kingdom of the world, the proud mortal for whom this mighty structure was raised. Where is he now ? Even his dry bones are gone, torn away by rude hands, and scattered by the winds of heaven.

8. The pyramids, like all the other great works of the ancient Egyptians, are built with great regard to accuracy of proportion. The sepulchral chamber is not in the center, but in an irregular and out-of-the-way position in the vast pile ; and some idea may be formed of the great ignorance which must exist in regard to the whole structure and its uses from the fact that by computation, allowing an equal solid bulk for partition walls, there is sufficient space in the great pyramid for three thousand seven hundred chambers as large as that containing the sarcophagus.

9. Next to the pyramids, probably as old, and hardly inferior in interest, is the celebrated Sphinx. Notwithstanding the great labors of Coriglia, it is now so covered with sand that it is difficult to realize the bulk of this gigantic monument. Its head, neck, shoulders, and breast are still uncovered ; its face, though worn and broken, is mild, amiable, and intelligent, seeming, among the tombs around it, like a divinity guarding the dead.

John L. Stephens.

EGYPTIAN TOMBS AND MUMMIES.

1. Gournou is a tract of rocks, about two miles in length, at the foot of the Libyan Mountains, on the west of Thebes, and was the burial-place of the great city of a hundred gates. Every part of these rocks is cut out by art, in

the form of large and small chambers, each of which has its separate entrance; and, though they are very close to each other, it is seldom that there is any interior communication from one to another. I can truly say it is impossible to give any description sufficient to convey the smallest idea of those subterranean abodes and their inhabitants. There are no sepulchres in any part of the world like them; there are no excavations, or mines, that can be compared to these truly astonishing places; and no exact description can be given of their interior, owing to the difficulty of visiting these recesses. The inconvenience of entering into them is such that it is not every one who can support the exertion.

2. A traveler is generally satisfied when he has seen the large hall, the gallery, the staircase, and as far as he can conveniently go; besides, he is taken up with the strange works he observes cut in various places, and painted on each side of the walls; so that when he comes to a narrow and difficult passage, or a descent to the bottom of a well or cavity, he declines taking such trouble, naturally supposing that he can not see in these abysses anything so magnificent as what he sees above, and consequently deeming it useless to proceed any farther.

3. Of some of these tombs many persons could not withstand the suffocating air, which often causes fainting. A vast quantity of dust rises, so fine that it enters into the throat and nostrils, and chokes the nose and mouth to such a degree that it requires great power of lungs to resist it and the strong effluvia of the mummies. This is not all; the entry or passage where the bodies are is roughly cut in the rocks, and the falling of the sand from the upper part or ceiling of the passage causes it to be nearly filled up. In some places there is not more than a vacancy of a foot left, which you must contrive to pass through in a creeping posture like a snail, on pointed and keen stones, that cut like glass.

4. After getting through these passages, some of them two or three hundred yards long, you generally find a more commodious place, perhaps high enough to sit. But what a place of rest! surrounded by bodies, by heaps of mummies in all directions; which, previous to my being accustomed to the sight, impressed me with horror. The blackness of the wall, the faint light given by the candles or torches for want of air, the different objects that surrounded me, seeming to converse with each other, and the Arabs with the candles or torches in their hands, naked and covered with dust, themselves resembling living mummies, absolutely formed a scene that can not be described. In such a situation I found myself several times, and often returned exhausted and fainting, till at last I became inured to it, and indifferent to what I suffered, except from the dust, which never failed to choke my throat and nose; and though, fortunately, I am destitute of the sense of smelling, I could taste that the mummies were rather unpleasant to swallow.

5. After the exertion of entering such a place, through a passage of fifty, a hundred, three hundred, or perhaps six hundred yards, nearly overcome, I sought a resting-place, found one, and contrived to sit; but, when my weight bore on the body of an Egyptian, it crushed like a bandbox. I naturally had recourse to my hands to sustain my weight, but they found no better support; so that I sank altogether among the broken mummies, with a crash of bones, rags, and wooden cases, which raised such a dust as kept me motionless for a quarter of an hour, waiting till it subsided again. I could not remove from the place, however, without increasing it, and every step I took crushed a mummy in some part or other.

6. Once I was conducted from such a place to another resembling it, through a passage of about twenty feet in length, and no wider than what a body could be forced

through. It was choked with mummies, and I could not pass without putting my face in contact with that of some decayed Egyptian ; but, as the passage inclined downward, my own weight helped me on ; however, I could not avoid being covered with bones, legs, arms, and heads, rolling from above. Thus I proceeded from one cave to another, all full of mummies piled up in various ways, some standing, some lying, and some on their heads.

7. I must not omit that among these tombs we saw some which contained the mummies of animals intermixed with human bodies. There were bulls, cows, sheep, monkeys, foxes, bats, crocodiles, fishes, and birds in them ; idols often occur ; and one tomb was filled with nothing but cats, carefully folded in red and white linen, the head covered by a mask representing the cat, and made of the same linen. I have opened all these sorts of animals. Of the bull, the calf, and the sheep, there is no part but the head which is covered with linen, and the horns project out of the cloth, the rest of the body being represented by two pieces of wood, eighteen inches wide, and three feet long, in an horizontal direction, at the end of which was another, placed perpendicularly, two feet high, to form the breast of the animal.

8. The calves and sheep are of the same structure, and large in proportion to the bulls. The monkey is in its full form, in a sitting posture. The fox is squeezed up by the bandages, but in some measure the shape of the head is kept perfect. The crocodile is left in its own shape, and, after being well bound round with linen, the eyes and mouth are painted on this covering. The birds are squeezed together, and lose their shape, except the ibis, which is found like a fowl ready to be cooked, and bound round with linen like all the rest.

9. The dwelling-place of the natives is generally in the passages, between the first and second entrance into

a tomb. The walls and the roof are as black as any chimney. The inner door is closed up with mud, except a small aperture sufficient for a man to crawl through. Within this place the sheep are kept at night, and occasionally accompany their masters in their vocal concert. A small lamp, kept alive by fat from the sheep, or rancid oil, is placed in a niche in the wall, and a mat is spread on the ground, and this formed the grand divan wherever I was.

10. When a young man wants to marry, he goes to the father of the intended bride, and agrees to pay for her. This being settled, so much money is to be spent on the wedding-day feast. To set up housekeeping, nothing is requisite but two or three earthen pots, a stone to grind meal, and a mat which is the bed. The spouse has a gown and jewels of her own, and if the bridegroom present her with a pair of bracelets of silver, ivory, or glass, she is happy and fortunate indeed.

11. The house is ready, without rent or taxes. No rain can pass through the roof, and there is no door, for there is no want of one, as there is nothing to lose. They make a kind of box of clay and straw, which, after two or three days' exposure to the sun, becomes quite hard. It is fixed on a stand, an aperture is left to put all their precious things into it, and a piece of mummy-case forms the door. If the house does not please them, they walk out and enter another, as there are several hundred at their command; I might say several thousand, but they are not all fit to receive inhabitants.

Belzoni.

THE TOMBS OF THEBES.

1. Before commencing my description of the tombs, let me attempt to give an outline of the topography of Thebes. The course of the Nile is here nearly north, di-

viding the site of the ancient city into two almost equal parts. On approaching it from Keneh, the mountain of Gurna, which abuts on the river, marks the commencement of the western division. This mountain, a range of naked limestone crags, terminating in a pyramidal peak, gradually recedes to the distance of three miles from the Nile, which it again approaches farther south. Nearly the whole of the curve, which might be called the western wall of the city, is pierced with tombs, among which are those of the queens, and the grand priestly vaults of the Assasseef. The valley of the Kings' Tombs lies deep in the heart of the range, seven or eight miles from the river.

2. After passing the corner of the mountain, the first ruin on the western bank is that of the temple-palace of Gurna. More than a mile farther, at the base of the mountain, is the Memnonium, or temple of Rameses the Great, between which and the Nile the two Memnonian colossi are seated on the plain. Nearly two miles to the south of this is the great temple of Medinet-Abu, and the fragments of other edifices are met with still farther beyond. On the eastern bank, nearly opposite Gurna, stands the temple of Karnak, about half a mile from the river. Eight miles eastward, at the foot of the Arabian mountains, is the small temple of Medamot, which, however, does not appear to have been included in the limits of Thebes. Luxor is directly on the bank of the Nile, a mile and a half south of Karnak, and the plain extends several miles beyond it before reaching the isolated range whose three conical peaks are the landmarks of Thebes to voyagers on the river.

3. These distances convey an idea of the extent of the ancient city, but fail to represent the grand proportions of the landscape, so well fitted, in its simple and majestic outlines, to inclose the most wonderful structures the world has ever seen. The green expanse of the plain ; the airy

coloring of the mountains; the mild, solemn blue of the cloudless Egyptian sky—these are a part of Thebes, and inseparable from the remembrance of its ruins.

4. The sand and pebbles clattered under the hoofs of our horses as we galloped up the gorge of the "Gates of the Kings." The sides are perpendicular cliffs of yellow rock, which increased in height the farther we advanced, and at last terminated in a sort of basin, shut in by precipices several hundred feet in height and broken into fantastic turrets, gables, and pinnacles. The bottom is filled with huge heaps of sand and broken stones, left from the excavation of the tombs in the solid rock. There are twenty-one tombs in this valley, more than half of which are of great extent and richly adorned with paintings and sculptures. Some have been filled with sand or otherwise injured by the occasional rains which visit this region, while a few are too small and plain to need visiting.

5. Sir Gardner Wilkinson has numbered them all in red chalk at the entrances, which is very convenient to those who use his work on Egypt as a guide. I visited ten of the principal tombs, to the great delight of the old guide, who complained that travelers are frequently satisfied with four or five. The general arrangement is the same in all, but they differ greatly in extent and in the character of their decoration.

6. The first we entered was the celebrated tomb of Rameses I, discovered by Belzoni. From the narrow entrance, a precipitous staircase, the walls of which are covered with columns of hieroglyphics, descends to a depth of forty feet, where it strikes an horizontal passage leading to an oblong chamber, in which was formerly a deep pit, which Belzoni filled. This pit protected the entrance to the royal chamber, which was also carefully walled up.

7. In the grace and freedom of the drawings, and the richness of their coloring, this tomb surpasses all others.

The subjects represented are the victories of the monarch, while in the sepulchral chamber he is received into the presence of the gods. The limestone rock is covered with a fine coating of plaster, on which the figures were drawn with red chalk, and afterward carefully finished in colors. The reds, yellows, greens, and blues are very brilliant, but seem to have been employed at random, the gods having faces sometimes of one color, sometimes of another. In the farthest chamber, which was left unfinished, the subjects are only sketched in red chalk. Some of them have the loose and uncertain lines of a pupil's hand, over which one sees the bold and rapid corrections of the master. Many of the figures are remarkable for their strength and freedom of outline. I was greatly interested in a procession of men, representing the different nations of the earth. The physical peculiarities of the Persian, the Jew, and the Ethiopian are therein as distinctly marked as at the present day. The blacks are perfect counterparts of those I saw daily upon the Nile, and the noses of the Jews seem newly painted from originals in New York.

8. The burial-vault, where Belzoni found the alabaster sarcophagus of the monarch, is a noble hall, thirty feet long by nearly twenty in breadth and height, with four massive pillars forming a corridor on one side. In addition to the light of our torches, the Arabs kindled a large bonfire in the center, which brought out in strong relief the sepulchral figures on the ceiling, painted in white on a ground of dark indigo hue. The pillars and walls of the vault glowed with the vivid variety of their colors, and the general effect was unspeakably rich and gorgeous.

9. Bruce's tomb, which extends for four hundred and twenty feet into the rock, is larger than Belzoni's, but not so fresh and brilliant. The main entrance slopes with a very gradual descent, and has on each side a number of small chambers and niches, apparently for mummies. The

illustrations in these chambers are somewhat defaced, but very curious, on account of the light which they throw upon the domestic life of the ancient Egyptians. They represent the slaughtering of oxen, the preparation of fowls for the table, the kneading and baking of bread and cakes, as well as the implements and utensils of the kitchen. In other places the field laborers are employed in leading the waters of the Nile into canals, cutting dourra, and threshing and carrying the grain into magazines. One room is filled with furniture, and the row of chairs around the base of the walls would not be out of place in the most elegant modern drawing-room.

10. The tomb of Memnon, as it was called by the Romans, is the most elegant of all in its proportions, and is as symmetrical as a Grecian temple. On the walls of the entrance are several inscriptions of Greek tourists, who visited it in the era of the Ptolemies, and spent their time in carving their names, like Americans nowadays. The huge granite sarcophagus in which the monarch's mummy was deposited is broken, as are those of the other tombs, with a single exception. This is the tomb of Osirei I, the grandfather of Sesostris, and the oldest in the valley. I visited it by crawling through a hole barely large enough to admit my body, after which I slid on my back down a passage nearly choked with sand, to another hole, opening into the burial-chamber. Here no impious hand had defaced the walls, but the figures were as perfect and the coloring as brilliant as when first executed.

11. In the center stood an immense sarcophagus, of a single block of red granite, and the massive lid, which had been thrown off, lay beside it. The dust in the bottom gave out that peculiar mummy odor perceptible in all the tombs, and, in fact, long after one has left them; for the clothes become saturated with it. The guide, delighted with having dragged me into that chamber, buried deep in

the dumb heart of the mountain, said not a word, and from the awful stillness of the place, and the phantasmagoric gleam of the wonderful figures on the walls, I could have imagined myself a neophyte on the threshold of the Osirian mysteries.

Bayard Taylor.

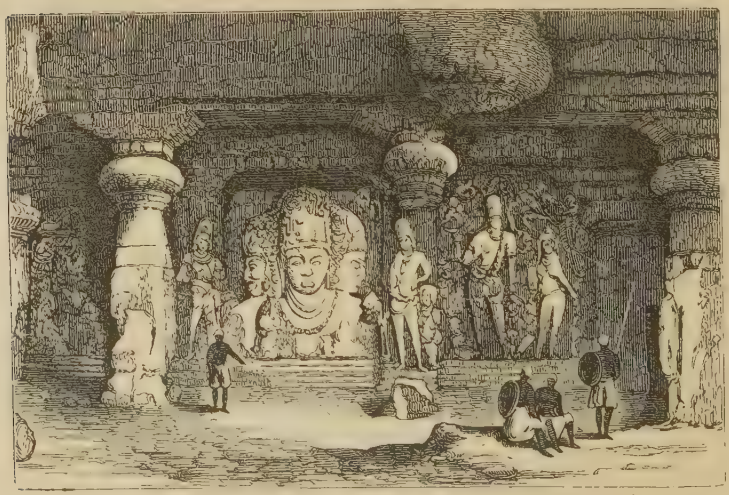
VISIT TO THE CAVE OF ELEPHANTA.

1. One of the most noted objects of interest at Bombay is the cave of Elephanta, situated upon an island in the harbor. Yesterday we visited this great work of art. Landing at a convenient pier which had lately been erected for the accommodation of the Duke of Edinburgh and his party, we ascended an easy flight of stone steps to a plateau one hundred and fifty feet above the sea. The esplanade, as well as the entire island, is deeply shaded with the beautiful, round-topped Palmyra palm. A decrepit Irish soldier, with his family, in a bamboo shanty, keeps watch and ward over the place. Passing to the center of the plateau and turning to the right, we confronted a work of human art, gigantic and marvelous.

2. It is a subterranean temple. The builders, beginning half-way up the mountain declivity, and cutting down vertically, have removed the mountain face to the depth of thirty feet, and to the width of three hundred feet. The vertical wall thus disclosed is of basalt. This rock they have hewn and chiseled away to the very center of the mountain, and wrought it into a temple with perfect architectural forms and just proportions. The excavation consists of four chambers. The central one is majestic with gateways, abutments, porches, columns, pilasters, cornices, and vaulted ceilings, as complete and perfect as if, instead

of having been carved in the rock, they had been detached from it, framed and erected on the ground.

3. While no architectural element is omitted, every part is perfectly finished. The broad pavement is as level and smooth as that of the rotunda of the Capitol at Washington. The ceiling needs no preparation to receive either fresco or gilding. The dome is spherical, while the columns upon which it rests, or seems to rest, have regular bases, bands, flutings, and capitals, though all alike are shaped from the undisturbed rock. We even thought it necessary to examine the lintels of the doors, to see if they



Triad Figure, Interior of Temple at Elephanta.

were not detached pieces of the rock itself. Standing in the porch, or within the temple, and looking inward, you confront the farther wall. In its center a deep recess, twenty feet square, reaching from floor to roof, is surmounted by a bold arch.

4. Within this recess is a colossal figure, or combina-

tion of figures, representing the triune god: Brahma, the Creator; Vishnu, the Preserver; and Siva, the Destroyer. Each of these figures is twice the human size. Brahma is looking forward in an attitude of calmness and contemplation; at his feet is a crouching lion. Vishnu rests on a bed of lotus leaves. Siva in one hand wields a drawn sword, and in the other holds a cobra ready to strike. The gigantic group is completed by the accessories of dwarfs and inferior gods.

5. The ceiling of the recess is decorated with a crowd of not less than fifty or sixty figures, such as, if found in any Christian temple, would be taken as representing angels. Every figure within the niche has a distinctive character, and is not deficient in force. But this group within the recess is only one group, the entire temple being a gallery full of like statuary. On either side of the principal hall or temple are lesser chambers, or chapels, and the walls of these are covered with allegorical works illustrating the transformations, incarnations, battles, triumphs, marriages, and miracles of the several members of the Brahminical trinity.

6. It is the opinion of the best Oriental scholars that this temple was excavated about twelve hundred years ago. No wonder that it remains complete in its forms and proportions! No storm can penetrate it, and no flood can invade it. Even the earthquake has spared it. Not so the demon of religious zeal. The intolerant followers of Mohammed mutilated these heathen faces and forms in the fourteenth century; and the no less fanatical Portuguese, who came in the wake of the Mohammedans, finding the task of defacing with the hammer too slow, brought a battery of cannon to the temple door and battered the stone gods.

7. What human sentiment is so strong as that of devotion? The passions of love, hate, and pride have covered

the earth with their monuments. But here in this cave of Elephanta devotion has written its sublimest faith in the very center of the earth itself. The chamber, which is at the right of the temple as you look inward, contains a spring of pure, ever-flowing water. The Brahmins think it possesses a healing virtue, and it is among their fond conceits that the purifying water comes through a subterranean passage from the Ganges.

8. The cave-temple of Elephanta is by no means a solitary monument. There are two others scarcely less spacious and elaborate on the same small island. In other parts of this coast, as well as in Ceylon, there are not only excavated temples of Brahma, but also of Buddha, of dimensions so vast, and execution so marvelous, as to throw those of Elephanta into the shade.

Seward's Travels.

THE CATACOMBS OF ROME.

1. The Roman catacombs consist for the most part of a subterranean labyrinth of passages, cut through the soft volcanic rock of the Campagna, so narrow as rarely to admit of two persons walking abreast easily, but here and there on either side opening into chambers of varying size and form. The walls of the passages, through their whole extent, are lined with narrow excavations, one above another, large enough to admit of a body being placed in each; and, where they remain in their original condition, these excavations are closed in front by tiles, or by a slab of marble cemented to the rock, and in most cases bearing an inscription. Nor is the labyrinth composed of passages upon a single level only; frequently there are several stories connected with each other by sloping ways.

2. There is no single circumstance, in relation to the catacombs, of more striking and at first sight perplexing character than their vast extent. About twenty different catacombs are now known, and are more or less open—and a year is now hardly likely to pass without the discovery of a new one ; for the original number of under-ground cemeteries, as ascertained from the early authorities, was nearly, if not quite, three times this number.

3. It is but a very few years since the entrance to the famous catacomb of St. Calixtus, one of the most interesting of all, was found by the Cavaliere de Rossi ; and it was only in the spring of 1855 that the buried church and catacomb of St. Alexander on the Normentan Way was brought to light. Earthquakes, floods, and neglect have obliterated the openings of many of these ancient cemeteries—and the hollow soil of the Campagna is full "of hidden graves, which men walk over without knowing where they are."

4. Each of the twelve great highways which ran from the gates of Rome was bordered on either side, at a short distance from the city wall, by the hidden Christian cemeteries. The only one of the catacombs of which even a partial survey has been made is that of St. Agnes, of a portion of which the Padre Marchi published a map in 1845.

5. "It is calculated to contain about an eighth part of that cemetery. The greatest length of the portion thus measured is not more than seven hundred feet, and its greatest width about five hundred and fifty ; nevertheless, if we measure all the streets that it contains, their united length scarcely falls short of two English miles. This would give fifteen or sixteen miles for all the streets in the cemetery of St. Agnes."

6. Taking this as a fair average of the size of the catacombs, for some are larger and some smaller, we must assign to the streets of graves already known a total length

of about three hundred miles, with a probability that the unknown ones are at least of equal length.

7. This conclusion appears startling when one thinks of the close arrangement of the lines of graves along the walls of these passages. The height of the passages varies greatly, and with it the number of graves, one above another; but the Padre Marchi, who is competent authority, estimates the average at ten, that is, five on each side, for every seven feet—which would give a population of the dead, for three hundred miles, of not less than two millions and a quarter. No one who has visited the catacombs can believe, surprising as this number may seem, that the Padre Marchi's calculation is an extravagant one as to the number of graves in a given space. We have ourselves counted eleven graves one over another, on each side of the passage, and there is no space lost between the head of one grave and the foot of another. Everywhere there is economy of space—the economy of men working on a hard material, difficult to be removed, and laboring in a confined space, with the need of rest.

8. Descending from the level of the ground by a flight of steps into one of the narrow under-ground passages, one sees on either side, by the light of the taper with which he is provided, range upon range of tombs cut, as has been described, in the walls that border the pathway. Usually the arrangement is careful, but with an indiscriminate mingling of larger and smaller graves, as if they had been made one after another for young and old according as they might be brought for burial. Now and then a system of regularity is introduced, as if the digger, who was a recognized officer of the early Church, had had the leisure for preparing graves before they were needed. Here there is a range of little graves for the youngest children, so that all infants should be laid together, then a range for older children, and then one for the grown up.

9. Sometimes, instead of a grave suitable for a single

body, the excavation is made deep enough into the rock to admit of two, three, or four bodies being placed side by side—family graves. And sometimes, instead of the simple loculus, or coffin-like excavation, there is an arch cut out of the tufa, and sunk back over the whole depth of the grave, the outer side of which is not cut away, so that, instead of being closed in front by a perpendicular slab of marble or of tiles, it is covered on the top by an horizontal slab.

10. But besides the different forms of the graves by which their general character was varied, there were often personal marks of affection and remembrance affixed to the narrow excavations, which give to the catacombs their most peculiar and touching interest. The marble facing of the tomb is engraved with a simple name or date ; or, where tiles take the place of marble, the few words needed are scratched upon their hard surface.

11. But the galleries of the catacombs are not wholly occupied with graves. Now and then they open on either side into chambers of small dimension and of various form, scooped out of the rock and furnished with graves around their sides—the burial-place arranged beforehand for some large family, or for certain persons buried with special honor. Other openings in the rocks are designed for chapels, in which the burial and other services of the Church were performed. These, too, are of various sizes and forms ; the largest of them would hold but a small number of persons ; but not unfrequently two stand opposite each other on the passageway, as if one were for the men, and the other for the women who should be present at the services.

Anonymous.

ROADS OF THE INCAS.

1. Those who may distrust the accounts of Peruvian industry will find their doubts removed on a visit to the country. The traveler still meets, especially in the central regions of the table-lands, with memorials of the past—remains of temples, fortresses, terraced mountains, great military roads, aqueducts, and other public works—which, whatever degree of science they may display in their execution, astonish him by their number, the massive character of the materials, and the grandeur of the design.

2. Among them, perhaps the most remarkable are the great roads, the broken remains of which are still in sufficient preservation to attest to their former magnificence. There were many of these roads, traversing different parts of the kingdom; but the most considerable were the two which extended from Quito to Cuzco, and, again diverging from the capital, continued in a southern direction toward Chili.

3. One of these roads passed over the grand plateau, and the other along the lowlands on the borders of the ocean. The former was much the more difficult achievement, from the character of the country. It was conducted over pathless sierra buried in snow; galleries were cut for leagues through the living rock; rivers were crossed by means of bridges that swung suspended in the air; precipices of hideous depths were filled up by solid masonry; in short, all the difficulties that beset a wild and mountainous region, and which might appall the most courageous engineer of modern times, were encountered, and successfully overcome.

4. The length of the road, of which scattered fragments only remain, is variously estimated at from fifteen hundred to two thousand miles; and stone pillars, in the manner of

European mile-stones, were erected at stated intervals of somewhat more than a league, all along the route. Its breadth scarcely exceeded twenty feet. It was built of heavy flags of freestone, and in some parts, at least, covered with a bituminous cement, which time has made harder than stone itself. In some places, where the ravines had been filled up with masonry, the mountain torrents, wearing on it for ages, have gradually eaten a way through the base, and left the superincumbent mass—such is the cohesion of the materials—still spanning the valley like an arch.

5. Over some of the boldest streams it was necessary to construct suspension bridges, as they are termed, made of the tough fibers of the maguey, or of the osier of the country, which has an extraordinary degree of tenacity and strength. These osiers were woven into cables of the thickness of a man's body. The huge ropes, then stretched across the water, were conducted through rings or holes cut in immense buttresses of stone raised on the opposite banks of the river, and there secured to heavy pieces of timber.

6. Several of these enormous cables bound together formed a bridge, which, covered with planks, well secured and defended by a railing of the same osier materials on the sides, afforded a safe passage for the traveler. The length of this aërial bridge, sometimes exceeding two hundred feet, caused it, confined as it was only at the extremities, to dip with an alarming inclination toward the center, while the motion given to it by the passenger occasioned an oscillation still more frightful, as his eye wandered over the dark abyss of waters that foamed and tumbled many a fathom beneath.

7. Yet these light and fragile fabrics were crossed without fear by the Peruvians, and are still retained by the Spaniards over those streams which, from the depth or im-

petuosity of the current, would seem impracticable for the usual modes of conveyance. The wider and more tranquil waters were crossed on balsas—a kind of raft still much used by the natives—to which sails were attached, furnishing the only instance of this higher kind of navigation among the American Indians.

8. The other great road of the Incas lay through the level country between the Andes and the ocean. It was constructed in a different manner, as demanded by the nature of the ground, which was for the most part low, and much of it sandy. The causeway was raised on a high embankment of earth, and defended on either side by a parapet or wall of clay; and trees and odoriferous shrubs were planted along the margin, regaling the sense of the traveler with their perfumes, and refreshing him by their shades, so grateful under the burning rays of the tropics. In the strips of sandy waste which occasionally intervened, where the light and volatile soil was incapable of sustaining a road, huge piles, many of them to be seen at this day, were driven into the ground to indicate the route to the traveler.

9. All along these highways, caravansaries, or *tambos*, as they were called, were erected at the distance of ten or twelve miles from each other, for the accommodation more particularly of the Inca and his suite, and those who journeyed on the public business. There were few other travelers in Peru. Some of these buildings were on an extensive scale, surrounded by a parapet of stone, and covering a large tract of land. These were evidently destined for the accommodation of the imperial armies when on their march across the country.

10. The care of the great roads was committed to the districts through which they passed, and a large number of hands were constantly employed under the Incas to keep them in repair. This was the more easily done in a coun-

try where the mode of traveling was altogether on foot; though the roads are said to have been so nicely constructed that a carriage might have rolled over them as securely as on any of the great roads of Europe. Still, in a region where the elements of fire and water are both actively at work in the business of destruction, they must, without constant supervision, have gradually gone to decay.

11. Such has been their fate under the Spanish conquerors, who took no care to enforce the admirable system for their preservation adopted by the Incas. Yet the broken portions that still survive, here and there, like the fragments of the great Roman roads scattered over Europe, bear evidence to their primitive grandeur, and have drawn forth the eulogium from a discriminating traveler, that "the roads of the Incas were among the most useful and stupendous works ever executed by man."

William H. Prescott.

THE ALHAMBRA.

1. To a traveler imbued with a feeling for the historical and poetical, so inseparably intertwined in the annals of romantic Spain, the Alhambra is as much an object of devotion as is the Caaba to all true Moslems. How many legends and traditions, true and fabulous; how many songs and ballads, Arabian and Spanish, of love and war and chivalry, are associated with this immortal pile! It was the royal abode of the Moorish kings, where, surrounded with the splendors and refinements of Asiatic luxury, they held dominion over what they vaunted as a terrestrial paradise, and made their last stand for empire in Spain. The royal palace forms but a part of a fortress, the walls of which, studded with towers, stretch irregularly round the

whole crest of a hill, a spur of the Sierra Nevada or Snowy Mountains, and overlook the city; externally it is a rude congregation of towers and battlements, with no regularity of place nor grace of architecture, and giving but little promise of the grace and beauty within.

The Alhambra, from the Albaycin.

2. In the time of the Moors the fortress was capable of containing within its outward precincts an army of forty thousand men, and served occasionally as a stronghold of the sovereigns against their rebellious subjects. After the kingdom had passed into the hands of the Christians, the Alhambra continued to be a royal demesne, and was occasionally inhabited by the Castilian monarchs. The Emperor Charles V commenced a sumptuous palace within its walls, but was deterred from completing it by repeated

shocks of earthquakes. The last royal residents were Philip V and his beautiful wife, Elizabeth of Parma, early in the eighteenth century. Great preparations were made for their reception. The palaces and gardens were placed in a state of repair, and a new suite of apartments erected, and decorated by artists brought from Italy. The sojourn of the sovereigns was but transient, and after their departure the palace became desolate.

3. During the recent troubles in Spain, when Granada was in the hands of the French, the Alhambra was garrisoned by their troops, and the palace was occasionally inhabited by the French commander. With that enlightened taste which has ever distinguished the French nation in their conquests, this monument of Moorish elegance and grandeur was rescued from the absolute ruin and desolation that were overwhelming it. The roofs were repaired, the saloons and galleries protected from the weather, the gardens cultivated, the water-courses restored, the fountains once more made to throw up their sparkling showers; and Spain may thank her invaders for having preserved to her the most beautiful and interesting of her historical monuments.

4. Our first object, of course, on the morning after our arrival, was a visit to this time-honored edifice; it has been so often, however, and so minutely described by travelers, that I shall not undertake to give a comprehensive and elaborate account of it, but merely sketches of parts, with the incidents and associations connected with them.

5. Leaving our posada, and traversing the renowned square of the Vivarrambla, once the scene of Moorish jousts and tournaments, now a crowded market-place, we proceeded along the Zacatin, the main street of what, in the time of the Moors, was the Great Bazaar, and where small shops and narrow alleys still retain their Oriental character. Crossing an open place in front of the palace of the captain-

general, we ascended a confined and winding street, the name of which reminded us of the chivalric days of Granada. It is called the Calle or street of the Gomeres, from a Moorish family famous in chronicle and song. This street led up to the Puerta de las Granadas, a massive gate-way of Grecian architecture built by Charles V, forming the entrance to the domains of the Alhambra. At the gate were two or three ragged superannuated soldiers, dozing on a stone bench, the successors of the Zegris and the Abencerrages; while a tall, meager varlet, whose rusty-brown cloak was evidently intended to conceal the ragged state of his nether garments, was lounging in the sunshine and gossiping with an ancient sentinel on duty. He joined us as we entered the gate, and offered his services to show us the fortress. I have a traveler's dislike to officious ciceroni, and did not altogether like the garb of the applicant. "You are very well acquainted with the place, I presume." "Nobody better; in fact, sir, I am a son of the Alhambra!" I put some further questions to him, and found that his title was legitimate. His family had lived in the fortress from generation to generation ever since the time of the conquest. The first title of this ragged worthy, however, had completely captivated me, so I gladly accepted the services of the "son of the Alhambra."

6. We now found ourselves in a deep, narrow ravine, filled with beautiful groves, with a steep avenue, and various foot-paths winding through it, bordered with stone seats and ornamented with fountains. To our left, we beheld the towers of the Alhambra, beetling above us; to our right, on the opposite side of the ravine, we were equally dominated by rival towers on a rocky eminence. These, we were told, were the Torres Vermejos, or vermilion towers, so called from their ruddy hue. No one knows their origin. They are of a date much anterior to the Alhambra; some suppose them to have been built by the

Romans ; others, by some wandering colony of Phœnicians. Ascending the steep, shadowy avenue, we arrived at the foot of a huge, square Moorish tower, forming a kind of barbacan, through which passed the main entrance to the fortress. Within the barbacan was another group of veteran invalids, one mounting guard at the portal, while the rest, wrapped in their tattered cloaks, slept on the stone benches. This portal is called the Gate of Justice, from the tribunal held within its portals during the Moslem domination for the immediate trial of petty causes—a custom common to the Oriental nations, and occasionally alluded to in the sacred Scriptures : "Judges and officers shalt thou make thee *in all thy gates*, and they shall judge the people with just judgment."

7. The great vestibule, or porch of the gate, is formed by an immense Arabian arch, of the horse-shoe form, which springs to half the height of the tower. On the key-stone of this arch is engraven a gigantic hand. Within the vestibule, on the key-stone of the portal, is sculptured, in a like manner, a gigantic key. Those who pretend to some knowledge of Mohammedan symbols affirm that the hand is the emblem of doctrine, the five fingers designating the five principal commandments of the creed of Islam—fasting, pilgrimage, alms-giving, ablution, and war against infidels. The key, say they, is the emblem of the faith or of power : the key of David transmitted to the prophet. The key, we are told, was emblazoned on the standard of the Moslems in opposition to the Christian emblem of the cross, when they subdued Spain or Andalusia. It betokened the conquering power invested in the prophet.

8. A different explanation of these emblems, however, was given by the legitimate son of the Alhambra, and one more in unison with the notions of the common people, who attach something of mystery and magic to everything Moorish, and have all kinds of superstitions connected with this old Moslem fortress. According to Mateo, it was a tra-

dition handed down from the oldest inhabitants, and which he had from his father and grandfather, that the hand and key were magical devices on which the fate of the Alhambra depended. The Moorish king who built it was a great magician, or, as some believed, had sold himself to the devil, and had laid the whole fortress under a magic spell. By this means it had remained standing for several hundred years, in defiance of storms and earthquakes, while almost all other buildings of the Moors had fallen to ruin and disappeared. This spell, the tradition went on to say, would last till the hand an the outer arch should reach down and grasp the key, when the whole pile would tumble to pieces, and all the treasures buried beneath it by the Moors would be revealed.

9. After passing through the barbacan, we ascended a narrow lane, winding between walls, and came on an open esplanade within the fortress, called the Plaza de los Algibes, or Place of the Cisterns, from great reservoirs which undermine it, cut in the living rock by the Moors to receive water brought by conduits from the Darro for the supply of the fortress. Here, also, is a well of immense depth, furnishing the purest and coldest of water—another monument of the delicate taste of the Moors, who were indefatigable in their exertions to obtain that element in its crystal purity.

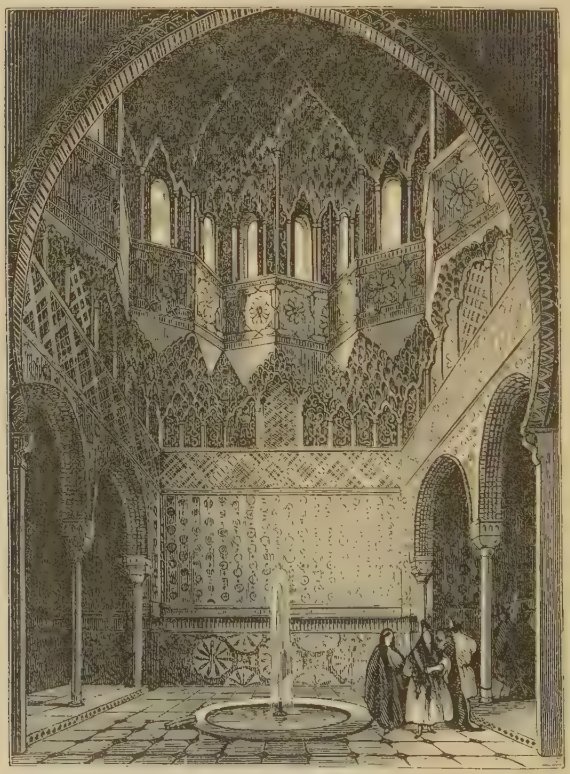
10. Under the guidance of a plump little black-eyed Andalusian damsel called Dolores, we crossed the threshold, and were at once transported, as if by magic wand, into other times and an Oriental realm, and were treading the scenes of Arabian story. Nothing could be in greater contrast than the unpromising exterior of the pile with the scene now before us. We found ourselves in a vast patio or court, one hundred and fifty feet in length and upward of eighty in breadth, paved with white marble, and decorated at each end with light Moorish peristyles, one of

which supported an elegant gallery of fretted architecture. Along the moldings of the cornices and on various parts of the walls were escutcheons and ciphers, and Cufic and Arabic characters in high relief, repeating the pious mottoes of the Moslem monarchs, the builders of the Alhambra, or extolling their grandeur and munificence. Along the center of the court extended an immense basin or tank, a hundred and twenty-four feet in length, twenty-seven in breadth, and five in depth, receiving its water from two marble vases. Hence it is called the Court of the Alberca (from *al Berrkah*, the Arabic for pond or tank). Great numbers of gold-fish were to be seen gleaming through the waters of the basin, and it was bordered by hedges of roses.

11. Passing from the court of the Alberca under a Moorish archway, we entered the renowned Court of Lions. No part of the edifice gives a more complete idea of its original beauty than this, for none has suffered so little from the ravages of time. In the center stands the fountain famous in song and story. The alabaster basins still shed their diamond drops; the twelve lions which support them, and give the court its name, still cast forth crystal streams as in the days of Boabdil.

12. The lions, however, are unworthy of their fame, being of miserable sculpture, the work probably of some Christian captive. The court is laid out in flower-beds instead of ancient and appropriate pavement of tiles or marble; the alteration, an instance of bad taste, was made by the French when in possession of Granada. Round the four sides of the court are light Arabian arcades of open filigree supported by slender pillars of white marble, which it is supposed were originally gilded. The architecture, like that in most parts of the interior of the palace, is characterized by elegance rather than grandeur, bespeaking a delicate and graceful taste, and a disposition to indolent enjoyment. When one looks upon the fairy traces of the

peristyles, and the apparently fragile fretwork of the walls, it is difficult to believe that so much has survived the wear and tear of centuries, the shocks of earthquakes, the violence of war, and the quiet, though no less baneful, pilfer-



Interior of the Alhambra.—Hall of the Abencerrages.

ings of the tasteful traveler ; it is almost sufficient to excuse the popular tradition that all is protected by a magic charm.

13. On one side of the court a rich portal opens into the hall of the Abencerrages, so called for the gallant cava-

liers of that illustrious line who were here perfidiously massacred. There are some who doubt the whole story; but our humble cicerone Mateo pointed out the very wicket of the portal through which they were introduced one by one into the Court of Lions, and the white marble fountain in the center of the hall beside which they were beheaded. He showed us also certain broad, ruddy stains on the pavement, traces of their blood, which, according to popular belief, can never be effaced.

14. Immediately opposite the hall of the Abencerrages a portal, richly adorned, leads into a hall of less tragic associations. It is light and lofty, exquisitely graceful in its architecture, paved with white marble, and bears the suggestive name of the Hall of the Two Sisters. Some destroy the romance of the name by attributing it to two enormous slabs of alabaster which lie side by side, an opinion strongly supported by Mateo Ximenes. Others are disposed to give the name a more poetical significance, as the vague memorial of Moorish beauties who once graced the hall, which was evidently a part of the royal harem. This opinion I was happy to find entertained by our bright-eyed guide Dolores, who pointed to a balcony over an inner porch, which gallery, she had been told, belonged to the women's apartment. "You see, señor," said she, "it is all grated and latticed like the gallery in a convent chapel, where the nuns hear mass; for the Moorish kings," added she, indignantly, "shut up their wives just like nuns."

15. The latticed "jalousies," in fact, still remain, whence the dark-eyed beauties of the harem might gaze unseen upon the zambras and other dances and entertainments in the hall below.

16. On each side of this hall are recesses or alcoves for ottomans and couches, on which the voluptuous lords of the Alhambra indulged in that dreamy repose so dear to Orientalists. A cupola or lantern admits a tempered light from

above, and a free circulation of air; while on one side is heard refreshing sounds of water from the Fountain of the Lions, and on the other side the soft plash from the basin in the garden of Lindaraxa.

17. It is impossible to contemplate this scene, so perfectly Oriental, without feeling the early associations of Arabian romance, and almost expecting to see the white arm of some mysterious princess beckoning from the gallery, or some dark eye sparkling through the lattice. The abode of beauty is here as if it had been inhabited yesterday; but where are the two sisters? where the Zoraydas and Lindaraxas?

18. An abundant supply of water, brought from the mountains by old Moorish aqueducts, circulates throughout the palace, supplying its baths and fish-pools, sparkling in jets within its halls, or murmuring in channels along the marble pavements. When it has paid its tribute to the royal pile, and visited its gardens and parterres, it flows down the long avenue leading to the city, tinkling in rills, gushing in fountains, and maintaining a perpetual verdure in those groves that embower and beautify the whole hill of the Alhambra.

19. Those only who have sojourned in the ardent climates of the South can appreciate the delights of an abode combining the breezy coolness of the mountain with the freshness and verdure of the valley. While the city below pants with the noontide heat, and the parched vega trembles to the eye, the delicate airs from the Sierra Nevada play through these lofty halls, bringing with them the sweetness of the surrounding gardens. Everything invites to that indolent repose, the bliss of southern climes; and while the half-shut eye looks out from shaded balconies upon the glittering landscape, the ear is lulled by the rustling of groves, and the murmur of running water.

Washington Irving.

THE CLIFF-DWELLERS.

1. A FEW years since, the exploring parties sent out by the United States Government discovered evidences of ancient occupation in the now wild and uninhabited portions of Colorado, New Mexico, and Arizona. The remains of dwellings built of stone were found scattered over a large extent of territory, some isolated, but mostly grouped in villages. A very remarkable feature of these dwellings was that they were frequently found built in crevices upon the almost vertical sides of cliffs, where they could be reached only by narrow and zigzag paths leading up from below. The cliffs themselves formed the cañons of the streams, and were from two hundred to a thousand feet in height. Frequently the rock on the top overhung the walls below and formed a kind of roof to the dwellings, which were in part excavated and in part built out on the face of the cliff.

2. The latest explorations show that these cliff-dwellers occupied a large extent of territory. A reporter for the "New York Tribune," under date of January 1, 1882, gives the following account of the researches made under the direction of Mr. James Stevenson, one of the United States engineers, during the past year:

3. The Pueblo, or village Indians, are scattered over an area in New Mexico and Arizona extending along the Rio Grande five hundred miles north and south, and four hundred miles westward. Within this area there are now about thirty-four inhabited villages. There are also the ruins of thousands of ancient villages and towns situated in the valleys of the streams, on the summits of the Mesas, and many high up in the sides of the cliffs and the walls of cañons, being carved out like swallows' nests. The ruins already known are sufficient in number and extent to furnish homes for at least half a million persons, and were

probably occupied by twice that number. One noted instance of a carved-out city is described by Mr. Stevenson which must have been the abode of at least one hundred thousand souls, and which these explorations are believed to have first brought to the knowledge of the civilized world. Mr. Stevenson first heard of it from an old Indian chief with whom he sat chatting in Spanish one evening. The old man was apparently somewhat disinclined to be communicative, but finally, as if to put off further inquiry, said :

4. "You wish to find old houses, do you ? Well, I will show you some. They are about twelve miles from here." The weather was threatening on the next day, and the old chief could not be induced to start out ; so Mr. Stevenson went eight or ten miles in the direction indicated, and, finding nothing of interest, thought he had been deceived. Two or three days later the old Indian signified his readiness to show the way to the deserted city. Mounted upon mules, the two started out and made their way toward a range of distant hills, from behind which towered an extinct volcano. As they approached the foot-hills Mr. Stevenson saw large numbers of black spots in rows, resembling swallows' nests, upon the face of a cliff. He asked his companion what they were. "Houses," was the reply. "No, not those on top," said Mr. Stevenson. "I mean the black spots on the cliff." "Houses !" rejoined the old chief ; "houses, I tell you—very old houses !"

5. The old man told the truth. For sixty miles along the face of the winding cliff, except where the elements had cut them away, these ancient cave-dwellings extended two, three, four, and sometimes five rows one above another. Mr. Stevenson examined this deserted city during several days, personally visiting portions distant forty-five miles from each other, and discovering with his glass that the excavations extended fifteen or twenty miles farther on.

By far the greater number are inaccessible, but many of the old paths, worn many inches deep by the feet of the ancients who dwelt there, are intact, and by them the explorer mounted to the old dwellings. There was a marked similarity in the form and construction of these excavations. There was only one aperture, which served for door, window, and chimney. The single room had an oval roof, which bore the grooves made by the flinty adzes or axes of the excavators.

6. The method of digging or carving out these caves was disclosed by the form and direction of the grooves, which were usually parallel to each other, and several inches apart, while between, as shown by the rough surface of the stone, the remaining substance had been broken off. There were fire-places at the rear, but no place of exit for the smoke except the single aperture in front. Many of the dwellings had side or rear excavations of small size, within some of which corn-cobs and beans were found, evidently left by chance inhabitants of a later period. Near the roof of many of the caves there were mortises, projecting from which in some instances there were discovered the decayed ends of wooden sleepers. They were of a kind of wood not recognizable as a present growth of the locality and unknown to the explorers. Specimens were brought away, to be examined and classified by naturalists. In the sides of some dwellings there were found small recesses, evidently used as cupboards for the household utensils of the family. The substance of the cliff was tufa, a volcanic ash quite soft and easily worked by the rude implements of the old builders.

7. Upon the top of the Mesa or table-land above these caves there were found large circular structures, now in ruins, but with walls to the height of ten or twelve feet still standing. They were evidently places of worship. They were built of square stones of nearly uniform size,

about twenty inches in length by six inches in width and four in thickness, cut from the cliff. Measurements were made of two of these structures, one of which was one hundred and the other two hundred feet in diameter, and might have held from one to two thousand people. The inference that these were places of worship is drawn from the fact that the Pueblos of the present day, who are fire and sun worshipers, have similar temples. No remains of altars were found, which fact is doubtless to be explained by the exposed situation and the soft materials probably used in the construction of such furniture.

8. The southern end of this cave city, which seemed to have been the most densely populated, presented many evidences of art and industry. This locality is more broken, and offers a better chance for successful resistance to the assaults of an enemy. There were found many animal forms carved out of stone. In one place there were two life-sized mountain-lions, animals which are still peculiar to that region. There are also to be seen many smaller animal forms, so much worn away that it can not be determined what they were designed to represent. Upon standing walls in this neighborhood are many hieroglyphics, which, from their resemblance to the picture-writing of the living Pueblos, may, Mr. Stevenson thinks, be partially, if not entirely, deciphered. The great age of this city is proved by the vast accumulation of *débris* from the upper portion of the cliff, which covers its base. In places where mountain-brooks have cut their way through, the existence of one and sometimes two rows of cave-dwellings below the surface of the *débris* is disclosed. Mr. Stevenson thinks that several centuries have passed since this dead city was in its prime.

9. The habits and customs of the ancients were sufficiently disclosed, by the researches in a number of the ruined towns, to show a striking similarity to the habits

and customs of the present Pueblo Indians, and to prove, as Mr. Stevenson believes, that the latter are the descendants of the aboriginal inhabitants of the locality where they now live, and from which they are fast passing away. In nearly every household of the Pueblos of the present day the explorers found heirlooms—articles of ancient pottery, household utensils, or idols, which had descended from their direct ancestry of a time further back than any of the living could remember. These objects comprise jars, bowls, ladles, dippers, water-vases, idols, arrow-heads; and many of those found in the *débris* of ruined towns and villages bore decorations exactly similar to those now used by the Pueblos.

10. The explorers made a close study of the habits and customs of the living Pueblo Indians, choosing for the purpose such communities as had most rarely been visited by the whites. They are a timid and secretive people, and the investigation in this regard was a slow one; but fair results rewarded patient watching. The Pueblo Indians of the present day are as skillful in pottery-making as were their ancestors, and evidently have received their art by inheritance. The potter's wheel is unknown; the only implements used are little trowels, made of clay and mortars and pestles of stone, the latter serving to reduce to a powder the mineral substances which are employed in part for decorating the pottery. The clay of which the vessels are made is of a fine quality. It is moistened and kneaded like dough, and is formed by the hand and the trowel as desired. A number of the unbaked vessels are placed together, and an oven-shapen pile of combustible manure is built around them and burned, by which process those intended for cooking are completed. The finer vessels, those designed for uses which will not impair their beauty, are decorated with mineral and vegetable paints. They are first coated with a fine quality of white clay, which, being

allowed to dry, receives a high polish. Upon this coating the paints are applied with a piece of rabbit-skin, in such designs as suit the fancy of the artist. One species of jet-black glossy pottery has heretofore been a puzzle to the investigators. Its glossy coating was supposed to be due to some kind of mineral paint known only to the Indians, but is now known to be the result of a process which follows the heating. When the vessels are very hot they are covered with a second pile of manure in a pulverized condition. The sudden partial cooling of the vessels causes them to absorb the smoke, which becomes oxidized upon their outer surfaces.

11. The explorers spent a considerable time with the Zunis, where they gathered a great number of articles illustrating almost every feature of their home life, their religion, their arts and manufactures. They then visited the Moki, situated in Southwestern Arizona. Moki is a generic term for seven Indian towns situated on the summits of High Mesas. The easternmost of the villages, called Walpi, is situated on a table elevated about twelve hundred feet above the surrounding country, with precipitous sides, and comprising barely sufficient area to accommodate the crowded homes of the villagers.

12. Five hundred yards distant is a similar mesa or table, upon which another crowded village is built. The inhabitants of these two villages speak the same language; but it is an interesting and singular fact that the dwellers upon a third table, situated only a few hundred yards distant, speak an entirely different dialect. The people and their ancestors are supposed to have dwelt thus as neighbors for centuries, yet in their ordinary conversation do not understand each other; and in their restricted intercommunication are compelled to resort to the use of sign-language. Their manners, customs, and religions are very similar, indicating a common origin, and they are at peace

one village with the other. About ten miles to the west of these three villages, three other villages similarly situated are found, while ten miles farther on is the westernmost of the Moki villages, called Oraibi, and containing a population about equal to the aggregate numbers of the other six villages.

13. Its inhabitants are so exclusive that they do not even visit the Government agency, nor have they ever received any annuities. The people of this village are subject to influences from some source which induce them to object to any communication with the whites. When the inhabitants discovered the approach of the exploring party they became so much alarmed that they abandoned their homes, leaving only the aged and bedridden. The opportunity was thus presented to the party to make their investigations in the homes of the people at their leisure. A series of fine photographic views of exteriors and interiors was obtained, but it was thought best not to carry away any of the utensils or curious articles of furniture with which the village homes were filled. Mr. Hillers, the photographer, had once before visited this village with Major Powell, and had secured a few photographic negatives ; but the result of the last visit was much more complete and satisfactory. The people of the seven villages manufacture a variety of interesting articles, such as sacred blankets, decorative basketing, and ornamental objects of worship, a large number of which were secured by purchase and exchange. In their vicinity are the ruins of the villages and cities of their ancestors, which remain in such a condition that a favorable opportunity was offered for determining the state of civilization of the ancient inhabitants. Mr. Stevenson estimates the number of Zunis at about fifteen hundred, of Mokis about twenty-five hundred, and of the remaining Pueblos from three to five hundred. He believes they will soon disappear.

PART XX.

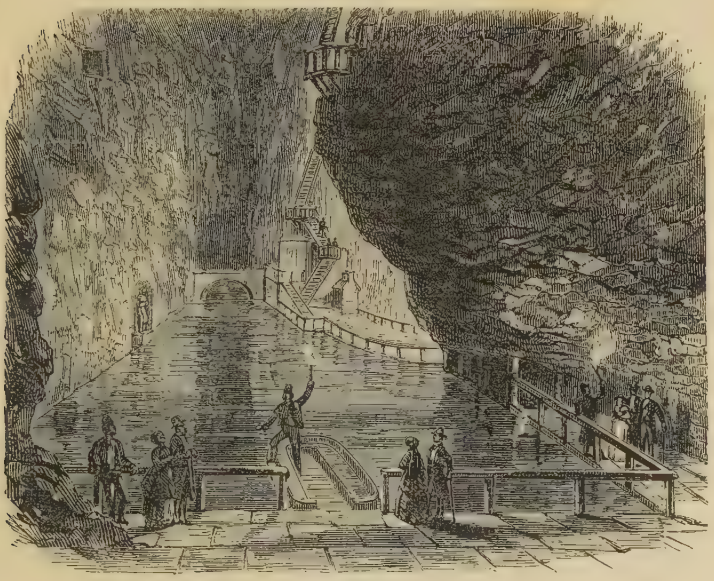
MISCELLANEOUS.

THE SALT MINES OF WIELICZKA.

1. Everybody who reads the "Wonders of the World" in the chimney-corner, in the long winter evenings, as I have done, has heard of the salt mines of Wieliczka. The account of this subterranean saline world made a profound impression upon me when a youngster, and I diverged a little from my direct route to visit it. All wonders which we first hear of in the dear secluded nest of home most attract us after our wings have grown and we have become restless birds of passage; but not all retain the old magic after we behold them.

2. In company with a professor from St. Petersburg, we left Cracow this morning, crossed the Vistula, and drove eastward through a low, undulating country, covered with fields of rye, oats, and potatoes. The village of Wieliczka occupies a charming situation on the northern slope of a long, wood-crowned hill. The large store-houses for the salt, the government offices, and the residences of the superintendents on a slight eminence near the foot, first strike the eye. After procuring a permit from the proper official, we presented ourselves at the office, over the mouth of the mine, in company with five Prussian travelers, two of them ladies, and a wandering German mechanic, who had tramped

out from Cracow in the hope of seeing the place. We were enveloped in long, coarse blouses of white linen, and, having bespoken a supply of Bengal lights, a door was opened, and we commenced descending into the bowels of the earth by an easy staircase in a square shaft. Six boys, carrying flaring lamps, were distributed among our party, and one of the superintendents assumed the office of conductor.



The Salt Mines of Wieliczka.

3. After descending two hundred and ten feet, we saw the first veins of rock-salt in a bed of clay and crumbled sandstone. Thirty feet more, and we were in a world of salt. Level galleries branched off from the foot of the staircase; overhead a ceiling of solid salt, underfoot a floor of salt, and on either side dark-gray walls of salt, sparkling here and there with minute crystals. Lights glimmered

ahead, and on turning a corner we came upon a gang of workmen, some hacking away at the solid floor, others trundling wheelbarrows full of the precious cubes. Here was the chapel of St. Anthony, the oldest in the mines—a Byzantine excavation, supported by columns, with altar, crucifix, and life-size statues of saints, apparently in black marble, but all as salt as Lot's wife, as I discovered by putting my tongue to the nose of John the Baptist.

4. I can not follow step by step our journey of two hours through the labyrinths of this wonderful mine. It is a bewildering maze of galleries, grand halls, staircases, and vaulted chambers, where one soon loses all sense of distance or direction, and drifts along blindly in the wake of his conductor. Everything was solid salt, except where great piers of hewn logs had been built up to support some threatening roof, or vast chasms, left in quarrying, had been bridged across. As we descended to lower regions, the air became more dry and agreeable and the saline walls more pure and brilliant. One hall, a hundred and eight feet in height, resembled a Grecian theatre, the traces of blocks taken out in regular layers representing the seats for the spectators. Out of this single hall a million hundred-weight of salt had been taken, or enough to supply forty million inhabitants of Austria for one year.

5. A little farther, we struck upon a lake four fathoms deep, upon which we embarked in a heavy square boat, and entered a gloomy tunnel, over the entrance of which was inscribed (in salt letters) "Good luck to you." In such a place the motto seemed ironical. "Abandon hope, all ye who enter here," would have been more appropriate. Midway in the tunnel the halls at either end were suddenly illuminated, and a crash as of a hundred cannon bellowing through the hollow vaults shook the air and water in such wise that our boat had not ceased trembling when we landed in the farther hall.

6. A tablet inscribed "Heartily welcome!" saluted us on landing. Finally, at the depth of four hundred and fifty feet, our journey ceased, although we were but half-way to the bottom. The remainder is a wilderness of shafts, galleries, and smaller chambers, the extent of which we could only conjecture. We then returned through scores of tortuous passages to some vaults where a lot of gnomes, naked to the hips, were busy with pick, mallet, and wedge, blocking out and separating the solid pavement. The process is quite primitive, scarcely differing from that of the ancient Egyptians in quarrying granite. The blocks are first marked on the surface by a series of grooves. One side is then deepened to the required thickness, and, wedges being inserted under the block, it is soon split off. It is then split transversely into pieces of a hundred-weight each, in which form it is ready for sale. Those intended for Russia are rounded on the edges and corners, until they acquire the shape of large cocoons, for the convenience of transportation into the interior of the country.

7. The number of workmen employed in the mines is fifteen hundred, all of whom belong to the "upper crust," that is, they live on the outside of the world. They are divided into gangs, and relieve each other every six hours. Each gang quarries out on an average a little more than seven thousand hundred-weight of salt in that space of time, making the annual yield one million five hundred thousand hundred-weight! The men we saw were fine, muscular, healthy-looking fellows, and the officer, in answer to my questions, stated that their sanitary condition was quite equal to that of the field laborers.

8. The officer explicitly denied the story of men having been born in these mines, and having gone through life without ever mounting to the upper world. So there goes another interesting fiction of our youth.

9. It requires a stretch of imagination to conceive the

extent of this salt bed. As far as explored, its length is two and a half English miles, its breadth a little over half a mile, and its solid depth six hundred and ninety feet! It commences about two hundred feet below the surface, and is then uninterrupted to the bottom, where it rests on a bed of compact sandstone such as forms the peaks of the Carpathian Mountains. Below this, there is no probability that it again reappears. The general direction is east and west, dipping rapidly at its western extremity, so that it may no doubt be pushed much farther in that direction. Notwithstanding the immense amount already quarried, and it will be better understood when I state that the aggregate length of the shafts and galleries amounts to four hundred and twenty miles, it is estimated that, at the present rate of production, the known supply can not be exhausted under three hundred years.

Bayard Taylor.

THE VARANGER FIORD.

1. The Varanger Fiord, to which so important a political interest has been attached within the last few years, is about seventy miles in length, with a general direction toward the southwest. The boundary line between Norwegian and Russian Finmark strikes it upon the southern side, about half way from the mouth, so that three fourths or more of the waters of the fiord belong to Norway. There is, however, a wonderful boundary line in addition, drawn by Nature, between the alien waters. That last wave of the Gulf Stream which washes the North Cape, and keeps the fiords of Finmark open and unfrozen the whole year through, sweeps eastward along the coast until it reaches the head of Varanger Fiord. Here its power is

at last spent, and from this point commences that belt of solid ice which locks up the harbors of the northern coast of Russia for six months in the year. The change from open water to ice is no less abrupt than permanent.

2. The little fort of Vordöhuus, on an island at the northern entrance of the fiord, is not a recent defense, meant to check Russian plans in this quarter. It was established by Christian IV nearly two and a half centuries ago. The king himself made a voyage hither, and no doubt at that time foresaw the necessity of establishing, by military occupation, the claims of Denmark to this part of the coast. The little fortress has actually done this service; and though a single frigate might easily batter it to pieces, its existence has kept Russia from the ownership of the Varanger Fiord and the creation (as is diplomatically supposed) of an immense naval station, which, though within the Arctic waters, would at all times of the year be ready for service.

3. It is well known that Russia has endeavored to obtain possession of the northern side of the fiord, as well as the Lyngen Fiord, near Tromsöe, toward which her Lapland territory stretches out a long arm. England is particularly suspicious of these attempts, and the treaty recently concluded between the allied powers and Sweden had a special reference thereto. The importance of such an acquisition to Russia is too obvious to be pointed out, and the jealous watchfulness of England is, therefore, easy to understand. But it is a singular thing that the conflicting forces of Europe find a fulcrum on a little corner of this dead, desolate, God-forsaken shore.

Bayard Taylor.

GATE AT NAN-KOW.

1. We have done it! We have seen the Great Wall. We have scaled its ramparts, walked through its gates, examined its bastions, trodden its parapet, looked off from its battlements, and rested under its shade. Regarding this as the greatest achievement of our journey thus far, we should desire to set down minutely and deliberately each one of its incidents; but, hurried as we are by threatening winter, we have only time to describe the prominent features and record an occasional thought.

2. From the very gate at Nan-Kow we found neither regular road nor marked nor beaten track, but a ravine which, in the lapse of ages, a torrent has excavated down the mountain, falling a thousand feet in a distance of twelve miles. Our upward way lay in the rugged furrow of this torrent. Each passenger was lashed tightly in his "mountain" chair, which is simply an arm-chair mounted on two shafts and borne by four coolies, his safety depending on the tenacity with which his feet press against a swinging board suspended before him from the shafts. The coolies pick their way by crossing from one side to the other over uneven, broken bowlders and rocks, and through deep gullies. The passenger at one moment is in danger of slipping out backward from his chair, at another from being thrown out one side or the other, and again of being dashed headlong on the rocks before him. In some places the torrent is dry, in others the coolies are slipping over treacherous ice, or splashing through pools of water among rounded pebbles and sharp rocks; in short, over everything but dry earth. Steep mountains exclude the sun's light and heat at all hours of the day. Those mountains are timberless, tenantless, dry, and brown. The geological formation of the pass is an alternation of

granite, gneiss, red and yellow sandstone, porphyry, and marble.

3. Having said that our road has none of the qualities and conditions of a thoroughfare, it will seem strange when

Gate at Nan-Kow.

we now say that at intervals we encounter through the whole pass blocks of hewn and polished marble, with other *débris* of pavements, culverts, bridges, arches, and gates, indicating that it was once a military road, superior to the Appian Way of Rome.

4. We met, in one of the most fearful gorges, a magnificent crimson wedding-car, which was coming down from Kiakhta to receive a bride at Peking. We encounter on the way a class of travelers that we have not before met. They come down in sedan-chairs, mule-litters, or carts, but on horses, camels, and donkeys; and of these there is an endless procession. The beasts are loaded with wheat, barley, hemp, flax, and wool. Thirty camels make up a single train. One man leads each six of the beasts by means of a cord, to which the halter of each is attached. Rocking from side to side, and unceasingly chewing their cuds as they move slowly along, they excite interest by their patience, docility, and perseverance. Rough and vehement as the camel-driver seems, we have not seem him inflict a blow or utter a word of impatience toward the gentle beasts.

5. Another class of travelers are herdsmen. Mongolia and Mantchooria, beyond the Great Wall, are pasturages, and the flocks of sheep and herds of cattle which are raised there are brought chiefly through this pass, to be spread over the great plain of North China. The Mongolians dress altogether in furs and skins. They have an air of independence and intelligence not observable in China proper. The women are particularly strong, and, as we judge from their manner, entirely free. Their furs are richer than those of the men, and they wear a profusion of silver ornaments on the forehead, wrist, and ankle, as well as suspended from their ears and nose. They travel with their husbands, who divide with them the care of the children. If it is discouraging to some at home to wait for the restoration of woman's rights, it is pleasant to find her in the full enjoyment of them here, in spite of Oriental prejudices and superstitions. The mountain cliffs are ornamented at convenient and prominent points with pretty temples and unique shrines, and pious devices and legends are carved on what seem to be inaccessible basaltic rocks.

But the temples and shrines, no longer attended by votaries, are falling into ruin.

6. Reaching at length the source of the mountain torrent which has made such a fearful devastation, we found ourselves in a dell surrounded by mountains, and from their crest the Great Wall encircling and frowning down upon us.

7. Our chairmen at once, with renewed vigor and elasticity, carried us up a rugged declivity of a quarter of a mile, clambering over shivered and shattered rocks, and set us down within a redoubt at the very base of the wall, three hundred feet above the dell which we had left. The wall varies in height from twenty-five to fifty feet. The base here, twenty feet high, is built of solid, hewn granite. We were not long in ascending the well-preserved flight of stone steps which led to the parapet. The top of the wall is wide enough for two carriages to pass. From the parapet we contemplated the conquered China of the past, which was below us, and the conquering Tartary of the past, which was above us, both now under one *régime*, and constituting one vast but crumbling empire. In the embrasures of the parapet we found here and there a cast-iron grooved cannon of four-pound caliber. It passed our comprehension to conceive when it was put there, or for what purpose. We entered a watch-tower on our left, and saw, at a distance of forty miles, murky Peking.

8. The Great Wall crosses twenty-one degrees of longitude from the Pacific coast to the desert border of Thibet, and with its windings has a length of from twelve hundred to fifteen hundred miles. It seems almost incredible that this gigantic structure—the greatest fortification that has been built by human hands—could have been raised in the short space of about twenty years. Yet history assures us that Chin-Wangti began the work in the year 240 B. C., and finished it in the year 220 B. C. Nor is the perfection of

the work less wonderful than the dispatch with which it was built. Although it here and there exhibits crumbling arches and falling ramparts, it nevertheless stands more firmly and in better preservation than any ancient structure, except perhaps the Pyramids. Very slight repairs would restore it to its original state.

Seward's Travels.

EARTHQUAKE IN THE EAST INDIES.

1. South of Borneo, and east of Java, lies the island called Sumbawa. Forty years ago a portion of that island was well cultivated and rather thickly populated. On the 5th of April, 1815, an earthquake began. It was not destructive at first, and the inhabitants of the town of Tomboro, who were accustomed to similar phenomena, paid but little attention to it. It continued without increase of violence for six days. On the 11th the rumbling subterranean sounds became louder, and resembled thunder-claps. The ground heaved more violently. On the 12th the earthquake acquired unprecedented force. It swept over the island like a tornado, tearing up trees by the roots and hurling them into the sea. It dashed the whole town to atoms. Out of a population of twelve thousand only twenty-six persons escaped alive. The sea rushed in upon the land in a single wave, varying from two to twenty feet in height. In some places it receded after having overflowed the soil. In others it submerged it permanently to a depth of eighteen feet, showing that the ground must have sunk to that extent.

2. At the same time an adjoining volcano burst into eruption, with a roaring sound which was heard distinctly at Sumatra, nine hundred and seventy miles distant, on

one side, and at Temate on another side, at seven hundred and twenty miles distance. It threw out lava in huge streams, which hid the ground, and such immense clouds of ashes, that Sir Stamford Raffles, then governor of Java, positively certifies that they darkened the air till the day seemed as dark as the darkest night. These ashes rose in the air above the lower regions of the atmosphere, in which the monsoon prevailed at the time, and were carried as far as the island of Amboyna, eight hundred miles distant. Masses of ashes, cinders, and lava fell into the sea near Sumbawa in such quantities as to form a cake two feet thick on the surface, through which ships forced themselves with difficulty.

VISIT TO KILAUEA, SANDWICH ISLANDS.

1. We left the village of Hilo on the coast at half past seven in the morning. The first part of our way lay along the flat ground, gay with bright scarlet Guernsey lilies, and shaded by cocoa-nut trees, between the town and the sea. Then we struck off to the right, and soon left the town behind us, emerging into the open country. At a distance from the sea, Hilo looks as green as the Emerald Isle itself; but on a closer inspection the grass turns out to be coarse and dry, and many of the trees look scrubby and half dead. Except in the "gulches" and the deep holes, between the hills, the island is covered with lava, in many places of so recent a deposit that it has not yet had time to decompose, and there is consequently only a thin layer of soil on its surface. This soil being, however, very rich, vegetation flourishes luxuriantly for a time; but as soon as the roots have penetrated a certain depth, and have come into con-

tact with the lava, the trees wither up and perish, like the seed that fell on stony ground.

2. The *ohia* trees form a handsome feature in the landscape, with their thick, tall stems, glossy foliage, and light crimson flowers. The fruit is a small, pink, waxy-looking apple, slightly acid, pleasant to the taste when you are thirsty. The candle-nut trees attain to a large size, and their light green foliage and white flowers have a very graceful appearance. Most of the foliage, however, is spoiled by a deposit of black dust, not unlike what one sees on the leaves in a London garden. I do not know whether this is caused by the fumes of the not-far-distant volcano, or whether it is some kind of mold or fungus.

3. After riding about ten miles in the blazing sun we reached a forest, where the vegetation was quite tropical, though not so varied in its beauties as that of Brazil, or of the still more lovely South Sea Islands. There were ferns of various descriptions in the forest, and many fine trees, entwined, supported, or suffocated by numerous climbing plants, among which were blue and lilac convolvulus, and magnificent passion-flowers. The protection from the sun afforded by this dense mass of foliage was extremely grateful; but the air of the forest was close and stifling, and at the end of five miles we were glad to emerge once more into the open. The rest of the way lay over the hard lava, through a sort of desert of scrubby vegetation, occasionally relieved by clumps of trees in hollows. More than once we had a fine view of the sea, stretching away into the far distance, though it was sometimes mistaken for the bright blue sky, until the surf could be seen breaking upon the black rocks, amid the encircling groves of cocoa-nut trees.

4. The sun shone fiercely at intervals, and the rain came down several times in torrents. The pace was slow, the road was dull and dreary, and many were the inquiries made for the "Half-way House" long before we reached

it. We had still two miles farther to go, in the course of which we were drenched by a heavy shower. At last we came to a native house, crowded with people, where they were making *tappa* or *kapa*—the cloth made from the bark of the paper-mulberry. Here we stopped for a few minutes until our guide hurried us on, pointing out the church and the "Half-way House" just ahead.

5. We were indeed glad to dismount after our weary ride, and rest in the comfortable rocking-chairs under the veranda. It is a small white wooden building, overhung with orange-trees, with a pond full of ducks and geese outside it, and a few scattered outbuildings, including a cooking hut, close by. A good-looking man was busy broiling beef-steaks, stewing chickens, and boiling *taro*, and we had soon a plentiful repast set before us, with the very weakest of weak tea as a beverage.

6. Directly we had finished our meal — about three o'clock—the guide came and tried to persuade us that, as the baggage-mules had not yet arrived, it would be too late for us to go on to-day, and that we had better spend the night where we were, and start early in the morning. We did not, however, approve of this arrangement, so the horses were saddled, and, leaving word that the baggage-mules were to follow on as soon as possible, we mounted, and set off for the "Volcano House." We had not gone far before we were again overtaken by a shower, which once more drenched us to the skin.

7. When we emerged from the wood, we found ourselves at the very edge of the old crater, the bed of which, three or four hundred feet beneath us, was surrounded by steep and in many places overhanging sides. It looked like an enormous caldron, four or five miles in width, full of a mass of cooled pitch. In the center was the still glowing stream of dark-red lava, flowing slowly toward us, and in every direction were red-hot patches, and flames and smoke

issuing from the ground. A bit of the "black country" at night, with all the coal-heaps on fire, would give you some idea of the scene.

8. Twenty minutes' hard riding brought us to the door of the "Volcano House," from which issued the comforting light of a large wood fire, reaching half-way up the chimney. The grandeur of the view in the direction of the volcano increased as the evening wore on. The fiery cloud above the present crater augmented in size and depth of color; the extinct crater glowed red in thirty or forty different places; and clouds of white vapor issued from every crack and crevice in the ground, adding to the sulphurous smell with which the atmosphere was laden. Our room faced the volcano; there were no blinds, and I drew back the curtains and lay watching the splendid scene until I fell asleep.

9. At three o'clock in the morning we set out, a party of eight with two guides. First of all, we descended the precipice, three hundred feet in depth, forming the wall of the old crater, but now thickly covered with vegetation. It is so steep in many places that flights of zigzag wooden steps have been inserted in the face of the cliff in some places, in order to render the descent practicable. At the bottom we stepped straight on to the surface of cold boiled lava, which we had seen from above last night. Even here, in every crevice where a few grains of soil had collected, delicate little ferns might be seen struggling for life, and thrusting out their green fronds toward the light. It was the most extraordinary walk imaginable over that vast plain of lava, twisted and distorted into every conceivable shape and form, according to the temperature it had originally attained, and the rapidity with which it had cooled, its surface, like half-molten glass, cracking and breaking beneath our feet. Sometimes we came to a patch that looked like the contents of a pot, suddenly petrified in the act of boil-

ing; sometimes the black iridescent lava had assumed the form of waves, or more frequently of huge masses of rope, twisted and coiled together; sometimes it was piled up like a collection of organ-pipes, or had gathered into mounds and cones of various dimensions.

10. As we proceeded, the lava became hotter and hotter, and from every crack arose gaseous fumes, affecting our noses and throats in a painful manner; till at last, when we had to pass to leeward of the molten stream flowing from the lake, the vapors almost choked us, and it was with difficulty we continued to advance. The lava was more glassy and transparent-looking, as if it had been fused at a higher temperature than usual; and the crystals of sulphur, alum, and other minerals, with which it abounded, reflected the light in bright prismatic colors. In places it was quite transparent, and we could see beneath it the long streaks of a stringy kind of lava, like brown spun glass, called "Pélé's hair."

11. At last we reached the foot of the present crater, and commenced the ascent of the outer wall. Many times the thin crust gave way beneath our guide, and he had to retire quickly from the hot, blinding, choking fumes that immediately burst forth. But we succeeded in reaching the top; and then what a sight presented itself to our astonished eyes! I could neither speak nor move at first, but could only stand and gaze at the terrible grandeur of the scene.

12. We were standing on the extreme edge of a precipice, overhanging a lake of molten fire, a hundred feet below us, and nearly a mile across. Dashing against the cliffs on the opposite side, with a noise like the roar of a stormy ocean, waves of blood-red, fiery liquid lava hurled their billows upon an iron-bound headland, and then rushed up the face of the cliffs to toss their gory spray high in the air. The restless, heaving lake boiled and bubbled, never re-

maining the same for two minutes together. Its normal color seemed to be a dull dark red, covered with a thin gray scum, which every moment and in every part swelled and cracked, and emitted fountains, cascades, and whirlpools of yellow and red fire, while sometimes one big golden river, sometimes four or five, flowed across it. There was an island on one side of the lake, which the fiery waves seemed to attack unceasingly with relentless fury, as if bent on hurling it from its base. On the other side was a large cavern, into which the burning mass rushed with a loud roar, breaking down in its impetuous headlong career the gigantic stalactites that overhung the mouth of the cave, and flinging up the liquid material for the formation of fresh ones.

13. It was all terribly grand, magnificently sublime; but no words could adequately describe such a scene. The precipice on which we were standing overhung the crater so much that it was impossible to see what was going on immediately beneath; but, from the columns of smoke and vapor that arose, the flames and sparks that constantly drove us back from the edge, it was easy to imagine that there must have been two or three grand fiery fountains below. As the sun set, and darkness enveloped the scene, it became more awful than ever. We retired a little way from the brink, to breathe some fresh air, and to try and eat the food we had brought with us; but this was an impossibility. Every instant a fresh explosion or glare made us jump up to survey the stupendous scene. The violent struggles of the lava to escape from its fiery bed, and the loud and awful noises by which they were at times accompanied, suggested the idea that some imprisoned monsters were trying to release themselves from their bondage, with shrieks and groans, and cries of agony and despair, at the futility of their efforts.

14. Sometimes there were at least seven spots on the

Crater or Kilauea.

borders of the lake where the molten lava dashed up furiously against the rock—seven fire-fountains playing simultaneously. With the increasing darkness the colors emitted by the glowing mass became more and more wonderful, varying from the deepest jet-black to the palest gray, from darkest maroon, through cherry and scarlet, to the most delicate pink, violet, and blue; from the richest brown, through orange and yellow, to the lightest straw-color. And there was yet another shade, only describable by the term "molten-lava color." Even the smokes and vapors were rendered beautiful by their borrowed lights and tints, and the black peaks, pinnacles, and crags, which surrounded the amphitheatre, formed a splendid and appropriate background. Sometimes great pieces broke off and tumbled with a crash into the burning lake, only to be remelted and thrown up anew. I had for some time been feeling very hot and uncomfortable, and, on looking round, the cause was at once apparent. Not two inches beneath the surface, the gray lava on which we were standing and sitting was red-hot. A stick thrust through it caught fire, a piece of paper was immediately destroyed, and the gentlemen found the heat from the crevices so great that they could not approach near enough to light their pipes.

15. One more long last look, and then we turned our faces away from the scene that had enthralled us for so many hours. The whole of the lava we had crossed, in the extinct crater, was now aglow in many patches, and in all directions flames were bursting forth, fresh lava was flowing, and steam and smoke were issuing from the surface. It was a toilsome journey back again, walking as we did in single file, and obeying the strict injunctions of our head guide to follow him closely, and to tread exactly in his footsteps. On the whole, it was easier by night than by day to distinguish the route to be taken, as we could now see the dangers that before we could only feel; and many were the

fiery crevices we stepped over or jumped across. Once I slipped, and my foot sank through the thin crust. Sparks issued from the ground, and the stick on which I leaned caught fire before I could fairly recover myself.

16. Either from the effects of the unaccustomed exercise after our long voyage, or from the intense excitement of the novel scene, combined with the gaseous exhalations from the lava, my strength began to fail, and before reaching the side of the crater I felt quite exhausted. I struggled on at short intervals, however, collapsing several times and fainting away twice; but at last I had fairly to give in, and to allow myself to be ignominiously carried up the steep precipice to the "Volcano House" on a chair, which the guides went to fetch for me.

Mrs. Brassey.

THE VALLEY OF DESOLATION.

1. You are still likely to fall among thieves, going down to Jericho, and the only safety is in being robbed before you start, by purchasing permission of the Arabs. The tribes that haunt the hill country near Jerulsalem are not entirely friendly toward each other; but, by retaining a sheik of one of the most powerful among them, you insure tolerable security for the excursion.

2. The sheik Artoosh, who awaited us at the foot of the Mount of Olives—for a Bedouin fears to enter the city, whose very walls his stern wilderness chafes—was the ideal Bedouin. He had the arched brow, the large, rich, sad, and tender eyes which are peculiar to the Orient, and which painters aim to give to pictures of Christ. It was the most beautiful and luminous eye I have ever seen. The other features were delicate, but full of force, and the olive transparency of his complexion set his planet-like

eyes as evening light the stars. There was that extreme elegance in his face, and in the supple grace of his movement, which imagination attributes to noblemen, and which is of the same quality as the refinement of a high-bred Arabian horse.

3. He wore, over a white robe, a long mantle of black goat's-hair cloth, and his head was covered with the true Bedouin head-dress — a Mecca handkerchief, or small shawl, of cloth of gold, with red borders and a long rich fringe. This is folded once, and laid smoothly upon the head. One end falls behind, between the shoulders, showering the fringe about the back; and the other is carried forward, over the right shoulder, and caught up upon the left cheek, so half shielding the face, like the open visor of a helmet. A double twist of goat's-hair cord, binding the shawl smoothly, goes around the head, so that the top of it is covered only with the gold.

4. Picture under this that mystic complexion of the desert, steep it all in Syrian light, and you have what only the eastern sun can show. Mark, too, the sheik's white mare—valued, even there, at purses equal to a thousand dollars, and on whom he moves as flexibly as a sunbeam on the water.

5. We skirted the Mount of Olives on the way to Bethany. In a quarter of an hour we were in the hill-wilderness—the mountains that separate the valley of the Jordan from the plain of the sea. Our path was a zigzag way upon the slope. There are no houses or gardens, and Bethany, lying blighted in a nook of the hills, is only beautiful because she lived there, who loved much. A few olive-trees and blossoming vines linger, like fading fancies of greenness and bloom, along the way. A few Arabs pass, with guns and rusty swords. You feel that you are in a wild country, where the individual makes his own laws.

6. Artoosh, like our sheik of the desert, was accompanied by an older dignitary, a kind of grand vizier, perhaps, or genius of the army. In narrow passes of the road, throats and gorges of the hills, overhung by steep cliffs, the vizier rode forward and surveyed the position, gun in hand, and finger on the trigger. Several times he rode back to Artoosh, and, after a low council, they galloped off together, and reappeared upon the hills beyond, riding around corners of the rock and into bushy places where foes might lurk. But it was quite their affair. We were only passengers, and watched their beautiful riding with unmingled delight in its grace, and went musing and singing along, in the monotonous noonlight, as in the safe solitude of a city.

7. Sunset showed us, from the brow of the mountains, the plain of the Jordan. Far away, upon the other side, it was walled by the misty range of the Moab. Utter silence brooded over the valley—and a silence as of death. No feeling of life saluted our gaze. From the Alps, you look southward into the humming luxuriance of Italy, and northward into the busy toil of Switzerland, and the Apennines are laved with teeming life. But of all valleys that I had ever beheld from mountain-tops, this was the saddest. Not even the hope of regeneration into activity dawned in the mind. I was looking down into the valley of the Shadow of Death.

8. We descended rapidly into the plain, and the camp was pitched among the green shrubs and trees that overhung a stream. It was Elisha's brook that ran sweet and clear just behind our tent. It was a wild night. The heat was deadly, and the massive mountains rose grimly before us, as if all fair airs were for ever walled away. The sky was piled with jagged clouds. Occasional showers pattered upon the tents, and keen lightning angrily flashed, while low, dull thunder was hushed and flattened in the

thick air. None of us slept. It was a weird and awful night.

9. A lurid dawn reddened over the valley. The leaden clouds caught the gleam upon their reef-like edges, but folded over again into deeper blackness. They clung, affrighted, to the mountains, which were only a mysterious darkness in the dawn. A mocking rainbow spanned the blind abysses, and the east was but a vast vapor, suffused with crimson luminousness. The day was fateful and strange, and glared at us vengeful-eyed, like a maniac. We were in a valley a thousand feet below the Mediterranean. The Dead Sea had infected it with death. This was the spirit and gloom of the sea, without its substance. Thus it would compel the very landscape and atmosphere to its appalling desolation, before it overflowed it with its water.

10. Through the vague apprehension of that supernatural morning I heard the gurgling song of the little brook of Elisha, flowing clear and smooth out of the dark mountain region, and threading that enchanted silence with pleasant sound. I ran to it and leaped in, and drank of the water. But the red-eyed morning scorned me as I lay in that sweet embrace, and moaning muttered thunders rehearsed the dreary day.

11. The tents were struck. Artoosh, sheik of sheiks, leaped into his saddle, and the beautiful mare paced slowly away from the camp and led us toward Jericho. The little stream called after me, rilling cool music through the leaves —softer ever, and farther, until I heard it no more. The path wound among the bushes upon the plain. A few large rain-drops fell with heavy distinctness upon the leaves. No birds sang, as they sing all day in dead, sunny Jerusalem. There were no houses, no flocks, no men or women. We came to a grain-tract that waved luxuriantly to the horses' bellies, and out of the grain, upon a little elevation, arose a solitary ruined tower.

12. It was the site of Jericho—the City of Palms, as Moses called it. We saw no roses nor palms. We saw only a cluster of sad stone hovels ; wan-eyed men stared at us like specters from the doors, and the scene was lonely and forlorn. Yet near one hovel a group of young fig-trees was blossoming, as fairly as ever the figs and roses could have blossomed in the gardens of Jericho, before the seven rams were yeaned, and Joshua was a beardless boy, in Israel's camp by the Red Sea. The elevation upon which stands the tower commands the plain, and a more memorable or remarkable landscape seen under such a sky is nowhere beheld.

13. The vast reach of the plain lay silent and shadowed, as in early twilight, from the gleaming level of the Dead Sea on the south to the mountains that closed the valley upon the north. Westward lay the hills of Judea, and to the east the Moab Mountains. Lower lines of nearer eastern hills rolled and curved before us. Over all hung the lurid sky. Vague thunder still shook the awed hush of morning, and far over the Dead Sea, into the dense blackness that absorbed at the south its burnished water, fiery flashes darted. Glimpses of pallid blue sky struggled overhead in the crimson vortex of vapor, and died into the clouds. Upon the tops of all the bushy trees near us sat solemn-eyed eagles and vultures, silent with fixed stare, like birds of prey dismally expectant.

14. But suddenly, like those who descry life in the midst of death, we saw the green trees that fringe the Jordan, and the whole party bounded at full speed over the plain. Beautiful, bowery Jordan ! Its swift, turbid stream eddied and fled through the valley, defying its death with eager motion, and with the low gurgling song of living water. It is very narrow—not more at that season than a hundred feet wide, and it has channeled a deep bed in the soft earth, so that you do not see it until you stand on the

The Valley of the Jordan, from the Convent of St. John.

very verge of the bank. Balsam poplars, willows, and oleanders lean over it, shrinking from the inexorable plain behind, clustering into it with trembling foliage and arching it with green, as if tree and river had sworn forlorn friendship in that extremity of solitude.

15. Beautiful, bowery Jordan! Yet you are sad as you stand dipping your feet in its water—sad as you watch this brave son of Lebanon rushing, tumultuously triumphant, like a victor in the race—rushing and reeling with terror and delight, and in a moment to be hushed and choked in the bosom of the neighboring sea—your eyes rove from the water to the trees that overhang it, with almost a human sympathy, and those trees are figures as lithe and pensive to your imagination as the daughters of Babylon who wept hopelessly by other waters.

16. So leave it singing under trees in your memory for ever. And when in after days you sit, on quiet summer Sundays, in the church, and hear the story of the Baptism, the forms around you will melt in the warm air; and once more those trees will overlean, once more those waters sing, and the Jordan, a vague name to others, shall be a line of light in your memory.

17. Artoosh turned to the south, and away from the river which bends toward the Moab Mountains. We rode for an hour over the soft, floor-like, shrub-dotted plain, and to the shore of the Dead Sea.

18. It lay like molten lead, heavily still under the clouds, a stretch of black water gleaming under muttering thunder. Its shores are bare mountain precipices. No tree grows upon the bank; no sail shines upon the sea; no wave or ghostly ripple laps the beach, only dead driftwood is strewn along the shore. No bird flew over; even the wind had died away. Moaning thunder only was the evidence of life in nature. My horse stooped to the clear water, but did not drink. It was a spot ac-

cursed. Did Cain skulk along this valley, leaving Abel in the field?

19. We tasted the water; it is inconceivably bitter and salt. Sea-water is mild in the comparison. None of us bathed. Not alone the stickiness and saltness, but a feeling of horror repelled me. Haply the sins of Sodom and Gomorrah, shaped as incredible monsters, haunt those depths. I believed the quaint old legend: "And if a man cast iron therein, it will float on the surface; but if men cast a feather therein, it will sink to the bottom."

Geo. W. Curtis.

THE GEYSERS OF THE YELLOWSTONE.

1. The Upper Geyser Basin of the Firehole River is the center of attraction in the Great National Park of the Yellowstone River. The opening containing the principal geysers extends about a mile up and down the river, with a width of from a quarter to half a mile. The geysers and principal springs are surrounded with deposits of the various minerals formed into cones, pyramids, castles, and grottoes, of every conceivable design. The surface is perforated with steam-vents from a half inch to five feet in diameter. Just imagine the steam coming up from a thousand orifices, the transparent element spouting forth from a dozen caldrons at once; and the whole scene, beautiful and strange within itself, bathed with the bright sunlight pouring down from a cloudless sky, softening and blending the variegated hues of the groundwork, and arching every column of steam with a halo of brilliant colors!

2. Our first visit is to Old Faithful, so called from the regular intervals at which she spouts. She stands as a sentinel on that eminence yonder at the head of the basin,

near the timber on the west side of the river, about a quarter of a mile southeast of our camp; and, though on the outpost of this mystic region, she never flinches from duty, nor asks relief, but by the hourly rush of steam, and the grand display of water-works, she sounds the "All's well!" reminding the inhabitants that she is at her post, and that the machinery of the lower region is yet in working condition. It is nearly time for her to spout, and we must be in haste if we would witness the first eruption at close range. Here we found several mounds, perhaps the craters of extinct geysers; but the crater of the Faithful is on an elevation made by the deposit from the water about twenty or thirty feet above the common level, with a chimney-like crater rising five or six feet higher.

3. Full of adventure, we walked up to the steaming aperture, but warned by the internal rumbling and quaking of the ground beneath us, attended by a rush of steam and water from the crater, we beat a hasty retreat, and had scarcely reached a place of safety, when, turning our eyes, we beheld one of the grandest displays of the kind we had ever beheld—a perfect geyser—an immense volume of clear, hot water projected into the air one hundred and twenty-five or one hundred and fifty vertical feet, attended with dense volumes of steam rising upward for many hundred feet, and floating away in clouds. So great was the impellent force, that the immense fountain was held in its place for several moments, only swayed to and fro by the gentle breeze, the water descending on all sides, and rushing down the slopes of the mound in great channels. Every spectator was filled with enthusiasm at this the first exhibition of the kind we had yet witnessed.

4. The crater is oblong in shape, being two feet wide by six in length, which gives you an estimate of the dimension of the volume of water thrown out, the average height of which is about one hundred and twenty-five feet.

The immense volume impelled from the crater forms a perfect apex at the top, where the water having spent its force descends on the outside of the ascending column, giving it, when the wind is favorable, driving away the steam, the appearance of a cone, nearly the shape of a sugar-loaf. The sparkling fountain lashed into foam, detached into millions of pearly drops, and all glistening in the bright sunlight, is grand beyond conception, and creates an enthusiasm that is perfectly irresistible. The water often at first goes up in jets or by successive impulses, as if the firemen were letting the steam on by degrees, each jet going higher, and still higher, when, after it has maintained its greatest altitude for a few moments, it descends in the same way until the force is spent. The last minute or so the eruption is entirely of steam.

5. But, leaving the Faithful, and crossing the river on a fallen tree, gathering a sprig and cone from an evergreen as we pass, as a memento of our visit, about three hundred yards distant down the stream, and not far from its margin, on the side of the slope, we come to a little cone of the same siliceous character, with perfect symmetry of form, and beautifully corrugated with pearl-like bead-work. It is three feet in height, nearly circular in form, and from three to four feet in diameter at the top, with a base of eight feet. Its aperture is about eighteen inches in diameter, and ornamented in its peculiar geyser-like style. This is the Beehive Geyser, so called from its appearance—that of a beehive.

6. Standing alone on the hill-side, you would not at first suspect that it belonged to the geyser family, as there is but little evidence of the action of water around it. But, while we were in camp the next day after our arrival, some one shouted: "Geyser! geyser! the Beehive! the Beehive's going off!" when we looked, and beheld a stream of water and steam, somewhat larger than the aperture, as-

cending gracefully and without any apparent effort from this small orifice, until it reached an altitude of at least two hundred feet. It makes a fine display as the water and steam come up in a steady stream (unlike most of the others), and continues in action about fifteen minutes. We were captivated at the sight, and in the midst of our excitement waded the river in order to have the full benefit of a closer view. We could stand within a few feet of the base on the windward side, while the water and steam were hurled with great force into the air. This geyser acts only once in every two or three days, and, being one of great beauty, is a general favorite.

7. On the same side of the river, about two hundred yards to the eastward from the Beehive, on the summit of a little knoll, is the Giantess, which, according to the evidence of some of the first explorers, is one of the grandest and most magnificent geysers in the basin when in action. Here is an orifice, with edges beautifully scalloped, about twenty by twenty-five feet in diameter at the surface, and filled to the brim with water, which is at about 192° temperature, and very slightly troubled. No one would suspect its being a geyser, but simply a mineral spring, such as crown some other eminences near here, were it not for the great channels and water-marks made by the descending torrent as it rushes down the hill-side, after being released from the heated chambers far down in the bowels of the earth.

8. But how different the scene two hours later, when attracted by repeated sounds like claps of thunder, and heavy concussions like the firing of a cannon underground, and about as regular as the discharges of a battery in a siege, causing the earth to tremble beneath our feet, and filling one with horror that would cause many to fear and tremble, and hearing the rumble and rush of falling water, accompanied by the hiss of powerful steam-valves in mo-

tion, we hastened to the scene of action, which proved to be the Giantess! She was just getting up, or rather it proved to be letting off, steam; and from the internal rumble of her machinery we anticipated a fine display. We found this great orifice, nearly one hundred feet in depth, half emptied, and the water foaming and heaving and surging at a terrible rate, throwing occasional volumes (a few scores of barrels each) out of the crater to the height of fifty feet, which came down with a fearful crash. At times the water would recede entirely from view, and we could look down into the terrible cavity, made more gloomy by the grim, dark walls, to its greatest depth. But more than once were we driven from the verge by the rising steam, as if, spiteful at our intrusion, it would cast out the boiling volumes and threaten us with destruction. This action was repeated occasionally for several hours, until after dark; but it positively refused to give us one of its grandest displays, of which a writer, before quoted, says:

9. "When an eruption is about to occur, the basin gradually fills with boiling water to within a few feet of the surface, when suddenly with heavy concussions immense clouds of steam rise to the height of five hundred feet, and the whole great body of water—twenty by twenty-five feet—ascends in one gigantic column to the height of ninety feet. From the apex of this column five great jets shoot up, radiating slightly from each other, to the unparalleled altitude of two hundred and fifty feet. The earth trembles under the descending deluge from this vast fountain; a thousand hissing sounds are heard in the air; rainbows encircle the summits of the jets with a halo of celestial glory. The falling water plows up and bears away the shelly strata, and a seething flood pours down the slope and into the river. After playing thus for twenty minutes, it gradually subsides; the water lowers

into the crater out of sight; the steam ceases to escape, and all is quiet."

10. Along the river-bank, a quarter of a mile below, are a number of chimney-like craters, which Dr. Hayden thinks are the remains of extinct geysers. They are full of water, in some of which it is at a high temperature, though not sufficient to produce eruptions. There are many such craters and springs all through Wonderland, which may have once been active geysers, but are now extinct; while others, though still active, erupt only at long intervals, and have not been discovered yet. It is sometimes difficult to distinguish between geysers and inactive springs when the former are not spouting, except by the channels in the shelly strata showing traces of the descending fountain as it flows away.

11. Near the west bank of the river is the Giant Geyser, which is the grandest and most gigantic fountain in the basin, and, as far as yet discovered, in the world. We had just left the Grotto, on our way to camp, and were resting in the cool shade of some intervening trees, not far away, when it began to give signs of an eruption, thus affording us a splendid opportunity to witness its movements.

12. This geyser is one of a group of three orifices or craters, all in a row and in close proximity, together with a small vent just off to one side, six inches in diameter, from which jets of steam are almost constantly emitted, much in the manner of the discharge of steam from the escape-pipe of a steam-engine, and with about the same regularity. They are all situated on a slight elevation about seventy-five or one hundred yards in diameter. The Giant is, of course, the principal one, and constitutes the center of attraction. Its crater has been compared, in appearance, to the base of a broken horn, but for my life I could liken it to nothing that I had ever seen, save the

stump of a hollow sycamore-tree of gigantic proportions, the top of which had been torn off in a storm. It rises ten or twelve feet above the platform, with a diameter of eight or ten feet at the top, with five feet cavity. One side is broken in—torn off, perhaps, by an unusually terrific eruption.

13. It swells out irregularly at the base just like the roots of a huge tree; the grayish silica crust represents the bark of the sycamore, while the cavity is carved into numerous little grooves, and stained with various minerals, giving it a dark coating, reminding you of the decayed part of the inside of an old stump. But it changes its appearance as you approach, and look down into its depths. The angry gurgling of the water can be heard at all times many feet below, and occasionally the agitation is so great that it is thrown out over the top of the crater, together with volumes of rising steam.

14. The first thing I observed when it gave signs of action was the cessation of the little steam-jet, when the geyser nearest it began to surge at a fearful rate, throwing a great volume of water to an altitude of twenty or thirty feet. It played but a moment, and the next one went through a similar operation, when, as if ashamed of their significant failures to rise in the world, or in honor of the grand chief of the realm who was about to appear, they all retired from the scene of action and became quiescent. Then, with a terrible rushing and rumbling below, with a powerful effort and fearful heavings that caused the very earth to groan, and seemed sufficient to tear the solid walls of the crater into a thousand atoms, the Giant came forth in the majesty of his mighty power. A volume of boiling water, the size of the nozzle of the crater, was projected to a great altitude, the action being repeated several times.

15. Then for a moment all was quiet. Thinking it

only a feint, we attempted to approach the orifice and make investigations, when we were met by an immense volume of steaming water, as if just from one of Hecate's caldrons, causing another disorderly retreat. It now commenced in earnest, and we surely witnessed one of the grandest displays of water-works ever beheld by mortal eyes. The fountains of the great deep seemed literally to have been broken up and turned loose again upon our sinful world. A steady column of water, graceful, majestic, and vertical, except as swayed by the passing breezes, was by rapid and successive impulses impelled upward above the steam until reaching the marvelous height of more than two hundred feet.

16. At first it appeared to labor in raising the immense volume, which seemed loath to start on its heavenward tour, but now it was with perfect ease that the stupendous column was held to its place, the water breaking into jets and returning in glittering showers to the basin. The steam ascended in dense volumes for thousands of feet, when it was freighted upon the wings of the wind and borne away in clouds. The fearful rumble and confusion attending it were as the sound of distant artillery, the rushing of many horses to battle, or the roar of a fearful tornado. It commenced to act at 2 P. M., and continued for an hour and a half, the latter part of which it emitted little else but steam rushing upward from its chambers below, of which, if controlled, there is enough to run an engine of wonderful power.

17. There are hundreds of springs in the basin, all differing more or less in some particular. There are about twenty regularly acting, of which those mentioned are the principal ones. On a calm, clear morning, at or just before sunrise, when all the springs are sending up their columns of steam of every magnitude, and all boiling and fussing and splashing away, as if trying each to attract the

greatest share of attention, and while one or two of the larger geysers are piercing the heavens with their stupendous columns, the basin presents a lively and interesting spectacle.

Edward J. Stanley.

CLOUDS.

1. From every natural fact invisible relations radiate, the apprehension of which imparts a measure of delight; and there is a store of pleasure of this kind ever at hand for those who have the capacity to turn natural appearances to account. It is pleasant, for example, to lie on one's back upon a dry green slope and watch the clouds forming and disappearing in the blue heaven.

2. A few days back the firmament was mottled with floating cumuli, from the fringes of which light of dazzling whiteness was reflected downward, while the chief mass of the clouds lay in dark shadow. From the edge of one large cloud-field stretched small streamers, which, when attentively observed, were seen to disappear gradually, and finally to leave no trace upon the blue sky. On the opposite fringe of the same cloud, and beyond it, small patches of milky mist would appear, and curdle up, so as to form little cloudlets as dense apparently as the large mass beside which they were formed. The counter processes of production and consumption were evidently going on at opposite sides of the cloud. Even in the midst of the serene firmament, where a moment previously the space seemed absolutely void, white cloud-patches were formed, their sudden appearance exciting that kind of surprise which might be supposed to accompany the observation of a direct creative act.

3. These clouds were really the indicators of what was

going on in the unseen air. Without them no motion was visible ; but their appearance and disappearance proved not only the existence of motion, but also the want of homogeneity in the atmosphere. Though we did not see them, currents were mingling, possessing different temperatures and carrying different loads of invisible watery vapor.

4. We know that clouds are not true vapor, but vapor precipitated by cold to water. We know also that the amount of water which the air can hold in the invisible state depends upon its temperature ; the higher the temperature of the air, the more water will it be able to take up. But when a portion of warm air, carrying its invisible charge, is invaded by a current of low temperature, the chilled vapor is precipitated, and a cloud is the consequence. In this way two parcels of moist air, each of which taken singly may be perfectly transparent, can produce by their mixture an opaque cloud. In the same way a body of clear humid air, when it strikes the cold summit of a mountain, may render that mountain "cloud-capped."

5. An illustration of this process, which occurred some years ago in a Swedish ball-room, is recounted by Professor Dove. The weather was clear and cold, and the ball-room was clear and warm. A lady fainted, and air was thought necessary to her restoration. A military officer present tried to open the window, but it was frozen fast. He broke the window with his sword, the cold air entered, and *it snowed in the room.* A minute before this all was clear, the warm air sustaining a large amount of moisture in a transparent condition. When the colder air entered, the vapor was first condensed and then frozen.

6. The admission of cool air even into our London ball-rooms produces mistiness. Mountain chains are very effective in precipitating the vapor of our southwesterly winds ; and this sometimes to such an extent as to produce totally different climates on the two sides of the same mountain

group. This is very strikingly illustrated by the observations of Dr. Lloyd on the rain-fall of Ireland. Stations situated on the southwest side of a mountain range showed a quantity of rain far in excess of that observed upon the northeast side. The winds in passing over the mountains were drained of their moisture, and were afterward comparatively dry.

7. Two or three years ago I had an opportunity of witnessing a singular case of condensation at Mortain in Normandy. The tourist will perhaps remember a little chapel perched upon the highest summit in the neighborhood. A friend and I chanced to be at this point near the hour of sunset. The air was cloudless, and the sun flooded the hillsides and valleys with golden light. We watched him as he gradually approached the crest of a hill, behind which he finally disappeared. Up to this point a sunny landscape of exquisite beauty was spread before us, the atmosphere being very transparent; but now the air seemed suddenly to curdle into mist. Five minutes after the sun had departed, a dense fog filled the valleys and drifted in fleecy masses up the sides of the hills. In an incredibly short time we found ourselves enveloped in local clouds so dense as to render our retreat a matter of some difficulty.

8. In this case, before the sun had disappeared, the air was evidently nearly saturated with transparent vapor. But why did the vapor curdle up so suddenly when the sun departed? Was it because the withdrawal of his beams rendered the *air* of the valleys colder, and thus caused the precipitation of the moisture diffused through the air? No. We must look for an explanation to a more direct action of the sun upon the atmospheric moisture. Let me explain. The beams which reach us from the sun are of a very composite character. A sheaf of white sunbeams is composed of an infinitude of colored rays, the resultant effect of all upon the eye being the impression of whiteness.

But, though the colors and shades of color which enter into the composition of a sunbeam are infinite, for the sake of convenience we divide them into seven, which are known as the prismatic colors.

9. The beams of the sun, however, produce *heat* as well as light, and there are different *qualities* of heat in the sunbeam as well as different qualities of light—nay, there are copious rays of heat in a sunbeam which give no light at all, some of which never even reach the retina at all, but are totally absorbed by the humors of the eye. Now, the same substance may permit rays of heat of a certain quality to pass freely through it, while it may effectually stop rays of heat of another quality. But in all cases the heat stopped is expended in heating the body which stops it. Now, water possesses this *selecting power* in an eminent degree. It allows the blue rays of the solar beam to pass through it with facility, but it slightly intercepts the red rays, and absorbs with exceeding energy the *obscure rays;* and those are the precise rays which possess the most intense heating power.

10. We see here at once the powerful antagonism of the sun to the formation of visible fog, and we see also how the withdrawal of his beams may be followed by sudden condensation, even before the air has had any time to cool. As long as the solar beams swept through the valleys of Mortain, every particle of water that came in their way was reduced to transparent vapor by the heat which the particle itself absorbed; or, to speak more strictly, in the presence of this antagonism precipitation could not at all occur, and the atmosphere remained consequently clear.* But the moment the sun withdrew, the vapor followed, without opposition, its own tendency to condense, and its sudden curdling up was the consequence.

* At this time I was brooding over experiments on the absorption of radiant heat by aqueous vapor.

11. With regard to the *air*, its temperature may not only have remained sensibly unchanged for some time after the setting of the sun, but it may have actually become warmer through the heat set free by the act of condensation. It was not, therefore, the action of cold air upon the vapor which produced the effect, but it was the withdrawal of that solar energy which water has the power to absorb, and by absorbing to become dissipated in true vapor.

12. I once stood with a friend upon a mountain which commands a view of the glacier of the Rhone from its origin to its end. The day had been one of cloudless splendor, and there was something awful in the darkness of the firmament. This deepening of the blue is believed by those who know the mountains to be an indication of a humid atmosphere. The transparency, however, was wonderful. The summits of Mont Cervin and the Weisshorn stood out in clear definition, while the mighty mass of the Finsteraarhorn rose with perfect sharpness of outline close at hand. As long as the sun was high, there was no trace of fog in the valleys, but as he sloped to the west the shadow of the Finsteraarhorn crept over the snow-fields at its base. A dim sea of fog began to form, which after a time rose to a considerable height, and then rolled down like a river along the flanks of the mountain.

13. On entering the valley of the Rhone, it crossed a precipitous barrier, down which it poured like a cataract; but long before it reached the bottom it escaped from the shadow in which it had been engendered, and was hit once more by the direct beams of the sun. Its utter dissipation was the consequence, and, though the billows of fog rolled on incessantly from behind, the cloud-river made no progress, but disappeared, as if by magic, where the sunbeams played upon it. The conditions were analogous to those which hold in the case of a glacier. Here the ice-river is incessantly nourished by the mountain snow: it moves

down its valley, but does not advance in front. At a certain point the consumption by melting is equal to the supply, and here the glacier ceases. In the case before us the cloud-river, nourished by the incessant condensation of the atmospheric vapor, moved down its valley, but ceased at the point where the dissipating action of the sunbeams equaled the supply from the cloud-generator behind.

Professor John Tyndall.

LAKE TAHOE.

1. A LAKE, six thousand feet above the sea, thirty miles long, sixteen miles wide, surrounded by mountains from which no summer melts all the snow, walled round the edges by firs and pines, set at the rim in a Mosaic of polished pebbles and brilliant flowers—is not that a lake to be loved? And I have not yet said a word of its water, which is so blue that it seems impossible it should not stain, and so clear that one can see fishes swimming more than a hundred feet below his boat, and so cold that ice would not cool it. For its water alone it could be well loved, if it lay in a desert. It has had some hard fortune in way of names. A German once named it Lake Bompland, and a militia general named it, after a governor, Lake Bigler. But ten years ago, by some marvelous good luck, it was rechristened by the old Indian name, Tahoe, pronounced by the Indians Tah-oo, and meaning "Big Water."

2. To find Lake Tahoe, one must journey on the Overland Railroad six days west from New York, or one day east from San Francisco, and leave the cars at Truckee. Truckee is as odd as its name. It looks so much as it sounds that one wonders if it could have been named beforehand. Truckee has one street. It is a broad, rocky,

Lake Tahoe.

dusty field. The railroad-track runs through it—so close to the houses on one side that you step from the cars to the hotel piazza. From the railroad side to the other, plank walks are laid at intervals; but there is no road—no semblance of a road—up and down the field. Enormous bowlders lie here and there, and you drive around them. Poor Truckee has had no time to blast rock on its highway, for it has been three times burnt out in nine months. Opposite the hotel is a long line of low wooden shops, with a row of slender evergreen trees in front—trees cut down and stuck into the ground, not planted. Beyond these comes the Chinese quarter—another long row of low, huddled, rickety wooden buildings, half of them black from the smoke of the fires, and all of them swarming with shiny-faced Chinese children. Newly cleared hill-slopes, hideous with blackened stumps, come down to the very backs of the houses. Truckee sells timber, and cuts down the nearest first. If anybody had had sense, the near slopes would have been left covered with trees, and Truckee would have had comfort and beauty; but now it is stripped, shelterless, dusty, as if it had been set down in a rocky Sahara.

3. Blackberries and strawberries and apricots and peaches and pears and apples can be bought on the sidewalk in Truckee early in July. You will be invited to an Indian corn dance, too, if you can read the Indian language, for you will meet the invitations on all the corners. They are painted in red and white and black on the foreheads and cheek-bones of Indian men and women. We supposed, at first, in our ignorance, that this was the usual style of promenade paint on the noble savage of these latitudes; but it was explained to us that it was their method of circulating the news and extending the invitations of a great festival—the corn dance—which was to take place a few weeks later. What a delicious device of taciturnity! There they stood—men, women, wrapped in blankets,

proud, impassive, speechless—looking at each other, and us, and the street, their sharp, fathomless eyes gleaming out from among the glistening scarlet and white hieroglyphics on their faces. "Request the pleasure of," etc., looks uncommonly queer done in Indian red over an eyebrow. But one needs to think before calling it silly or barbarous. It has its merits: no words lost, for one thing; economical, too, for another; and no replies expected, best of all—though one could not be sure, perhaps, of this last. I do not know that a few days later the whole tribe might not have been seen painted in new colors and shapes, to signify their intended absence or presence.

4. The road from Truckee to Lake Tahoe lies along the bank of the Truckee River—a small stream, which comes foaming and roaring down from the High Sierras in a swift fashion for a carrier of wood. But wood it carries—all it can lift and spin and whirl—every day; and in many places we saw it choked full of the black, shiny logs, and groups of men ("log-drivers"), up to their waists in the water, trying to separate them and hurry them along. We saw also a "log-shoot," which is a fine sight of a sunny morning—a yellow, glistening line, from the top of the mountain straight to the river's edge. This line is made of split logs, two abreast, laid lengthwise, close, smooth side up. Down this logs are sent sliding into the river. Before the log is half way down, the planks beneath it are smoking, blue and fast, from the friction. Sometimes they take fire. As the log hits the river-edge, it often somersaults twice, and leaps with such force that the water is thrown up in a sparkling sheaf higher than the tops of the trees. Four or five times over, taking less than half a minute a time, we saw this swift, craunching slide, pale smoke-wreath, and glittering water-spout.

5. And then we came to a foundling asylum for trout. We went in, and the proprietor set all the infants fighting

for food at once, to amuse us. Their dormitories were cool and well ventilated, certainly, consisting of a series of unroofed tanks; and the chopped liver on which they are fed must have been of the very best quality, for they scrambled for it faster than beggars ever scrambled for pennies. The youngest of all were put in shallow covered boxes, with graveled bottoms and only a little water. Those that were but four days old were droll. There were millions of them in a box. They looked like white currants, with two black beads for eyes, and a needle-point for tail. The man said they would be trout presently, and weigh two or three pounds apiece. It seemed unlikelier than anything I ever heard.

6. You are three hours going from Truckee to Lake Tahoe, and it is so steadily up hill that you begin to wonder long before you get there why the lake does not run over and down. At last you turn a sharp corner, and there lies the lake, only a few rods off. What color you see it depends on the hour and the day. It has its own calendars —its spring-times and winters, its dawns and darknesses— incalculable by almanacs.

7. It is apt to begin by gray, early in the morning; then the mountains around it look like pale onyx, and the sky, too, is gray. Then it changes to clouded sapphire, and the mountains change with it also to a pale, opaque blue; then to brilliant, translucent, glittering sapphire, when the right sort of sun reaches just the right height. And, when there is this peculiar translucent sapphire blue in the water, then the mountains are of opal tints, shifting and changing, as if heat were at work in their centers.

8. Then, if at sunset the mountains take on rose or ruby tints, the water becomes like a sea of pink pearl molten together with silver; and, as the twilight wind cools it, it changes to blue, to green, to steel-gray, to black. This is merely one of its calendars of color—one which I

happened to write down on a day when, lying all day by a second-story window, I saw no interval of foreground at all—only the sky arching down to the lake, and the lake reaching, as it seemed, up to my window-sill. I felt as one might who sailed in a hollow globe of sapphire, or floated in a soap-bubble.

9. There are two tiny steamboats on Lake Tahoe. Every morning one lies at the little wharf opposite the hotel, and rings its miniature bell and whistles its gentle whistle; but it will wait while the head waiter puts up more lunch, or the bridegroom runs back for the forgotten shawl. The twenty or thirty people who are going off in her all know this, and nobody hurries. There are several small villages on the shore of the lake; there are some hot springs; there is Carnelian Beach, where tiny red and yellow carnelians can be picked up by handfuls; there is Emerald Bay, where are sharp cliffs many hundred feet high, and water of a miraculous green color. It takes all day to go anywhere and come back in one of these boats, for the engines are only of one tea-kettle power. In fact, as the little craft puffs and wriggles out from shore, it looks as if it had the Quangle Wangle for steersman, and as if Lionel and his companions might come back on the rhinoceros's back.

10. The row-boats are better; and, if you take a row-boat, Fred is the man to row you. Everybody at Lake Tahoe knows Fred. He it was who rowed us out to one Sunday service we shall not forget. It was four o'clock in the afternoon. Summer afternoons on Lake Tahoe are warm till sunset; never has the mercury been known to rise above seventy-five degrees in this magic air; and it rarely, during July and August, falls below sixty-two degrees. The delight and the stimulus of this steady, clear, crisp air—snow-cooled, sun-warmed, water-fed—can not be told. Day after day of warm sunlight, such as only rain-

less skies can show; and night after night of the sleep which only cool nights can give; almost it seems to me that miracles of cure might be wrought on these shores.

11. The Lake Tahoe House stands in a small clearing on the shore of the lake. A minute and a half's walk, chiefly down-stairs, and you are at the water's edge. For a few rods up and down the lake the trees are felled; there are also four or five small houses; but, once past these, you glide instantly into shadow of the firs and pines, and can believe that you are the first to sail by. On this Sunday we rowed to the south, keeping close into the shore. Two miles below the hotel we had seen a picturesque lumber-mill, standing in another small clearing, which, from the lake, looked like a flower-garden, so gay was it with solid reds and blues.

12. Searching for this, we rowed slowly along—now coming so near the shore that we could reach the brakes and mosses, now striking out far into the lake to go around a fallen tree, which walled our path as effectually as if we had been on foot in the woods. As we drew near the mill, and saw the gay colors more distinctly, we looked at each other in speechless wonder. We had seen fields yellow with the eschscholtzia, and spots so blue with blue larkspur that we had taken them for ponds; but never had we seen such radiance of color as this. Spaces six feet, ten feet, twelve feet square, set thick with the scarlet-painted cups, growing and flowering in such fullness it hardly looked like itself, and fully justified its common name in California—"Painter's Brush."

13. Mingling with this, also, in great solid spaces, a light blue forget-me-not, flowering in full heads; two other blue flowers grew in great profusion all about; one grew in low clumps. The flowers were set on the stem like the foxglove flowers, but three rows thick, making a wide spike, which on its front gleamed like a row of blue steel

tube-mouths, so deep was the color, so lustrous the surface. The other blue flower was like a snap-dragon, and grew on slenderer stems. Then there was a royal pennyroyal, with white flowers in heads like clovers; and a graceful branching plant, full of small trumpet-shaped blossoms, of a vivid cherry red. We gathered them not by handfuls or by bunches, but by armfuls, and staggered back into the boat, literally loaded down.

14. Then we said to Fred:

"Now row us back to that thicker part of the wood where we saw those fine green ferns."

Jumping out to get the ferns, and going a few steps into the wood, we came upon a still more wonderful spot. The water of the lake had made up in the spring into a small hollow among the bushes; this was now left green as a river meadow. It was not more than ten or twelve feet either way, and the grass in the center was wet and rank. On its outer edges grew red lilies, scarlet columbines, high green brakes, and willows; but these were not its glory. Tall, stately, white as Annunciation lilies, there stood forty or fifty spikes of a flower we had never seen. It was from two to five feet high. The blossoms were small, resembling syringa blossoms, but set thick on long, tasseling stems, as corn blossoms are; and these again massed thick around the central stem, making a branching, drooping, and yet erect and stately spike, not unlike the spike of the flower of the Indian corn, except that it was much thicker and more solid. It was the most regal flower I ever saw growing. Among these were growing many lower spikes of a tiny white flower, like our lady's-tresses. But even these spikes of this tiny flower were at least two inches in circumference at the bottom, tapering up to the top exquisitely.

15. Again loaded with sheaves, we climbed back into the boat. Fred looked on wonderingly. There was no room to step, to sit. He never carried such multitudes before.

"Now row out, Fred, into the middle of the lake," we said, as we sank down.

By this time the sunsetting had begun. The sky and the mountains and the water were all turning rose-pink; and we came shooting anon in the midst of the rose-color, bringing our fiery reds and stately white. We set the tall snowy spikes upright along the sides of the boat; great nodding yellow disks, too, of the elecampane, and the vermilion bells of columbine. Then we made one huge bouquet of the scarlet-painted cups and the blue forget-me-nots; one of the red trumpet flower and the white pennyroyal, with a solid base of the mysterious dark-blue flowers; one of the white lady's-tresses, with the red trumpets; and one of the stately white spikes, with branching ferns. Then, setting these up as royal passengers, we lay down humbly at their feet, and, with our heads low, looked off over the rose-colored waters. Much I doubt if so gorgeous a pageant will ever float again on that water.

16. The next day we rowed early in the morning. Fred had assured us that, in a still morning, one could see the bottom of the lake where it was one hundred and fifteen feet deep. We doubted, but longed to believe. The water was like glass. We rowed out toward the center of the lake. The snow-covered mountains on the farther side were reflected in long, white, shimmering columns on the purple surface of the water.

17. "Thirty," "fifty," "sixty," "one hundred feet deep," Fred called out from time to time, as he rowed steadily on. And we, hanging half out of the boat, exclaimed with irrepressible wonder at the golden-brown world below, into which we were gazing. We could see the bottom of the lake as clearly as we could see the bottom of the boat. It was a dusty field, with huge bowlders, covered with a soft brown growth, which made them look like gigantic sponges. Then would

come great ledges of rock; then dark hollows, unfathomably deep.

"I shpect if she be dry she be shust like these mountains," said Fred—"all cañons and pig beaks."

And in a moment more: "Here it ish one hunder fifteen feet clear," he called out, triumphantly, and lifted his oars.

Not a stone was indistinct. We could count small ones. It seemed as if we could touch them with ease; and, swift as an arrow, apparently within our hand's reach, went by a shining trout.

"How far down was he, Fred?" we called.

"Ach! Don't know. Maype fifty feet," said Fred. The trout were an old story to him.

18. But it was when we turned to row back that the full wonder of such a transparent sea was revealed to us. The sun was behind us. As we looked over the bows, we could see the shadow of our boat, of our heads, of the moving oars, all distinct on the soft brown bottom of the lake. This shadow lay off to the left, a little ahead, gliding as we glided, pausing as we paused; then, directly ahead, gliding as we glided, pausing as we paused, went another double, equally distinct, but dark and shimmering on the surface. This was the reflection. Over the edges of this phantom boat we seemed to be leaning with even more eagerness than over the edges of the one below. It was an uncanny sight. To have two shadows would have been too much for even Peter Schlemihl. It added much to the unreality of the sight that every round stone, every small object on the bottom, was surrounded by a narrow line of rainbow. These gave a fantastic gayety to the soft amber-brown realm, and, beautiful as they made it, made it also seem more supernatural.

19. "You pe shust in time," called Fred. "In two minute you not see nothing. There vill pe vint."

Sure enough. Already the ripple was in sight, coming rapidly toward us from the north. The air stirred faintly, our glass sea quivered and broke noiselessly under us, and the phantom boat below disappeared.

As we rowed on the shallower water, nearing the shore, where we could still see the bottom distinctly, the effects of the sunlight on it were exquisite. It lay in lapping and interlacing circles and ovals of yellow, and the surface ripples were reflected there in larger lines. The reflection of the oars in the water on each side of us looked like golden snakes, swimming fast alongside, and the beautiful rainbow lines still edged every object on the bottom.

H. H.

COLORADO SCENERY.

1. The famous Garden of the Gods, for which everybody asks as soon as he enters Colorado, and which nine out of ten people see for the first time with a ludicrous sense of disappointment, is another of these strange, rock-crowded parks. Who is responsible for the inappropriate name Garden of the Gods, I do not know: one more signally unfitting could hardly have been chosen. Fortress of the Gods, or Tombs of the Giants, would be better.

2. This park lies only three miles from Colorado Springs, and its grand gateway is in full sight from every part of the town. Fancy two red sandstone rocks three hundred feet high, of irregular outline and surface, rising abruptly and perpendicularly like a wall, with a narrow passage-way between them. The rock on your right, as you enter from the east, is of the deepest brick-red; the one on the left is paler, more of a flesh-color. At their base is a thick growth of low oak bushes, vivid light green in summer, in winter a

scarcely less vivid brown, for many of the leaves hang on until April. These rocks are literally fretted full of holes and rifts; tiny round holes as smooth as if an auger had bored them; ghastly crevices and chasms smoothed and hollowed like sockets in gigantic skeletons.

3. Thousands of swallows have nests in these, and at sunset it is a beautiful sight to see them circling high in the air, perching for a moment on the glittering red spires and pinnacles at top of the wall, and then swooping downward and disappearing suddenly where no aperture is to be seen, as if with their little bills they had cloven way for themselves into the solid rock. Within a few feet of the top of the highest spire on the right-hand rock is a small diamond-shaped opening, a mullioned window, through which is always to be seen the same diamond-shaped bit of sky, bright blue or soft gray, or shadowy white if a cloud happens to pause so as to fill the space.

4. I once had the good fortune to see a white-breasted sparrow sit motionless for some minutes on a point of rock just above this window, when the sky was clear blue and the rock vivid red in a blazing sunlight. Such a picture as that was, three hundred feet up in the air, one does not see more than once in a life-time. The sparrow's white breast looked like a tiny fleece of white cloud caught on the rock. Not till two dark wings suddenly opened out and bore the white fleece upward did I know that it was a bird.

5. Passing through this majestic gateway, you find yourself in the weirdest of places; your red road winds along over red ground thinly grass-grown, among low cedars, pines, and firs, and through a wild confusion of red rocks—rocks of every conceivable and inconceivable shape and size, from pebbles up to gigantic bowlders, from queer, grotesque little monstrosities, looking like seals, fishes, cats, or masks, up to colossal monstrosities looking like elephants,

like huge gargoyles, like giants, like sphinxes eighty feet high, all bright red, all motionless and silent, with a strange look of having been just stopped and held back in the very climax of some supernatural catastrophe. The stillness, the absence of living things, the preponderance of grotesque shapes, the expression of arrested action, give to the whole place, in spite of its glory of coloring, spite of the grandeur of its vistas ending in snow-covered peaks only six miles away, spite of its friendly and familiar cedars and pines, spite of an occasional fragrance of clematis or smile of a daisy or twitter of a sparrow—spite of all these, a certain uncanniness of atmosphere which is at first oppressive. I doubt if one ever loved the Garden of the Gods at first sight. One must feel his way to its beauty and rareness, must learn it like a new language; even if one has known Nature's tongues well, he will be a helpless foreigner here.

6. A mile to the north of the Garden of the Gods is a very beautiful little park, walled in by high hills and sandstone rocks of many colors, red, pink, yellow, and pale gray, stained dark green and brown-and-red in markings so fantastic and capricious, it seems impossible that they are not painted. The outlet from this little nook to the north is a narrow cañon, little more than a cleft in the rocks. A snow-fed brook runs down through this cañon and zigzags through the little park, making it a luxuriant garden of cotton-wood trees, shrubs, and vines, and all manner of flowers. The rocks here are so towering and grand that, except for the relief of their brilliant hues, and the tender leafing and flowering things around them, they would be overawing. There are single shafts like obelisks or minarets, slender, pointed, one or two hundred feet high; huge slabs laid tier upon tier like giant sarcophagi; fretted and turreted masses like abbeys fallen into ruin: and all these are red or painted in mosaic tints of green-and-brown and black-and-yellow. This is called Glen Eyrie. In it there

is a beautiful home, and the voices of little children are often heard high up on the rock walls, where they seem as

Major Domo, Glen Eyrie, Colorado.

contented and as safe as the goats which are their comrades.

7. I will describe but one more of these parks; I am told that there are scores of them all along the range of

foot-hills running northward from Colorado Springs. I do not believe that among the scores is one to be found so beautiful as Blair Athol. I do not believe that in all the earth is a spot to be found more beautiful than Blair Athol, unless possibly it may be some of the wild flower-gardens nestled at the base of the dolomites in the Tyrol. Will there ever arise in Colorado a master to paint her rocks and mountains in the backgrounds of immortal pictures as Titian painted the dolomites ?

8. Blair Athol lies six miles to the northwest of Colorado Springs. Its name has a charm of sound which is not lessened when you know that the Scotchman who owns and named it added to his own name, Blair, the name of Athol, by reason of his love for house and lands of that name in Scotland. It is a spot fit for a clan and a chieftain. It lies lonely and still, biding its time. The road which leads into it is so grass-grown that it is hard to find. The spot where it turns off from the main highway is sure to be overlooked unless one keeps a close watch. It seems not to promise much, this rough, grass-grown track. It points toward foot-hills which are low and close-set, and more than usually bare.

9. But in Colorado roads any minute's bend to right or left may give you a delicious surprise, a new peak, a far vista, a changed world. The Blair Athol road, taking a sudden curve to the left, shows you such a vista : a foreground of low oaks and pines, the hills falling away to right and left and revealing the mouth of a glen walled thickly across by high pines ; through this solid wall of green, fantastic gleams of deep red and rose-pink ; rising above it, a spire or two of bright yellow ; on the left hand, sharp ridges of dark, iron-stained sandstone, green, gray, yellow, black ; on the right hand, low, mound-shaped hills, densely grown with pines and firs, the soil shining red below them.

10. As the road winds in, the rocks seem almost to wheel and separate, so many new vistas open between the pines, so many new rocks come in sight. A few steps farther, and the way seems suddenly barred by a huge mass of yellow rock; a broad light streams in from the left, the south; there lies open country. Close to the base of this yellow rock-wall the road clings, still in shade of the pines, and turns an abrupt corner to the left. You are in the park. The yellow rock round which you have turned is its east wall; to the west it is walled with rocks, rose-color and white; to the north with high, conical, pine-grown hills; to the south with sharp, almost pyramidal, hills and masses of detached and piled rocks, dark red and rose-color.

11. It is smooth as a meadow; its curves rise to the bases of the rocks gently and lingeringly. Groups of pines make wide, fringed circles of shades here and there; blue anemones, if it is a June day, dot the ground. A few rods farther there is a break in the eastern wall, and framed in this frame of a yellow rock is a broad picture of the distant plains in bars of sunlight and shadow, gold and purple. This is the view on which must look the eastern and southern piazzas of the house when it is built, and to that end Nature has left clear the slight eminence a little to the north of the center of the park. No man building here could think of building elsewhere than on this rise, and it is surely an odd thing that not a pine has set foot in it; that they have grouped themselves all about it, with as exquisite a consideration as the king's head gardener could have shown.

12. Presently the road stops short on the brink of a ravine, in which once there must have been water, for it is full of vines and shrubs, a tangle of green. Because the ravine is not bridged, we turn to the right; there is just room to creep round the base of the west wall of red rock. Turning this, lo! we are in another little park, wilder and

more beautiful than the first. The ground is more broken, and there are thick copses of low oaks and pines. The red wall on this side is even stranger and more fantastic than on the other. It leans and topples, keeping all the while a general slant northwest and southeast, which is, no doubt, to the geologist an important feature in its record. At its base, huge dark-red and pale rose-colored bowlders are piled in confusion; its top is jagged; isolated peaks and projections on its sides seem to have been wrought and carven—one into a great stone chair, one into a canopied sounding-board. The stone is worn out in hollows and crevices into which you can thrust your arm up to the elbow. In these, generations of conies and squirrels have kept their "feast of the acorn," and left the shells behind. This wall is on your right; on the left, low mounds and hills, with groves of pines in front, pines so thick that you get only glimpses through them of the hills behind.

13. Soon the road ceases, dies away as if the last traveler had been caught up, at this point, into the air. A delicious sense of being in the wilderness steals over you. Climbing up on one of the ridges of the right-hand wall, you look down into the first park, and out across it to the plains. Seen from this height, the grouping of the pines seems even more marvelous than before. It is impossible to leave off wondering what law determined it, if a landscape instinct and a prophetic sense of unbuilt homes be in the very veins of Colorado pines. The outlook eastward from this ridge is grand. It is the one which the upper windows of the house will command: in the foreground the huge yellow rock, three hundred feet long and from one to two hundred feet high; beyond this a line of bluffs, then an interval of undulating plains, then another line of bluffs, and then the true plains, far, soft, and blue, as if they were an outlying ocean in which the world was afloat.

14. Immediately below this ridge lies the exquisite little

cup-like park, with its groups of pines. The rocks of its western wall, seen from this point, are not only dark red and pale rose : they show intricate markings of white and gray and yellow ; the tints are as varied and beautifully combined as you would see in a bed of September asters. Underneath your feet the hollows of the rock are filled in and matted with dry pine needles ; here and there, in a crevice, grows a tiny baby pine, and now and then gleams out a smooth white pebble, cast up by some ancient wave, and wedged tight in the red sandstone.

15. As you climb higher and higher to the north, there are more rocks, more vistas, more pines and low oaks, a wilder and wilder confusion of bowlders. When you reach the summit, the whole northern horizon swings slowly into view, and completes the semicircle of plains by the dark-blue belt of the Divide. At the very top of this pinnacle is an old pine tree, whose gnarled roots hold great bowlders in their clutch as eagles hold prey. If the tree were to blow off, some one of the days when the wind blows ninety miles an hour in Colorado, it looks as if it must go whirling through the air with the rocks still tight in its talons. There seems no soil here, yet the kinni-kinnick vines have spread shining mats of thick green all around the base of the tree. The green of these and the pine, the bright brown of the fallen cones, the shading and multiplying reds of the gigantic rocks, the yellow and blue of the far-off plains, the white and blue of the far-off sky—all these crowd on the sight as you sit on this crowning pinnacle of Blair Athol.

H. H.

SYDNEY SMITH'S REVIEW OF WATERTON'S TRAVELS.

1. Mr. Waterton is a gentleman of Yorkshire, of good fortune, who, instead of passing his life at balls and assemblies, has preferred living with Indians and monkeys in the forests of Guiana. He appears in early life to have been seized with an unconquerable aversion to Piccadilly, and to that train of meteorological questions and answers which forms the great staple of polite English conversation. From a dislike to the regular form of a journal, he throws his travels into detached pieces, which he, rather affectedly, calls Wanderings—and of which we shall proceed to give some account.

2. His first Wandering was in the year 1812, through the wilds of Demerara and Essequibo, a part of Dutch Guiana, in South America. The sun exhausted him by day, the mosquitoes bit him by night; but on went Mr. Charles Waterton!

3. The first thing which strikes us in this extraordinary chronicle is the genuine zeal and inexhaustible delight with which all the barbarous countries he visits are described. He seems to love the forests, the tigers, and the apes; to be rejoiced that he is the only man there; that he has left his species far away; and is at last in the midst of his blessed baboons! He writes with force and vigor; and contrives to infuse into his reader that admiration of the great works, and undisturbed scenes of Nature, which animates his style, and has influenced his life and practice. There is something, too, to be highly respected and praised in the conduct of a country gentleman who, instead of exhausting life in the chase, has dedicated a considerable portion of it to the pursuit of knowledge.

4. Mr. Waterton complains that the trees of Guiana are not more than six yards in circumference—a magnitude in

trees which it is not easy for a Scotch imagination to reach. Among these, pre-eminent in height, rises the mora—upon whose top branches, when naked by age, or dried by accident, is perched the toucan, too high for the gun of the fowler; around this are the green heart, famous for hardness; the tough hackea; the ducalabali, surpassing mahogany; the ebony and letterwood, exceeding the most beautiful woods of the Old World; the locust-tree, yielding copal; and the hayawa and olou-trees, furnishing sweet-smelling resin. Upon the top of the mora grows the fig-tree. The bush-rope joins tree and tree, so as to render the forest impervious, as, descending from on high, it takes root as soon as its extremity touches the ground, and appears like shrouds and stays supporting the mainmast of a line-of-battle ship.

5. Demerara yields to no country in the world in her birds. The mud is flaming with the scarlet curlew. At sunset the pelicans return from the sea to the courada trees. Among the flowers are the humming-birds. The columbine, gallinaceous, and passerine tribes people the fruit-trees. At the close of day, the vampires, or winged bats, suck the blood of the traveler, and cool him by the flap of their wings. Nor has Nature forgotten to amuse herself here in the composition of snakes: the camoudi has been killed from thirty to forty feet long; he does not act by venom, but by size and convolution. The Spaniards affirm that he grows to the length of eighty feet, and that he will swallow a bull; but Spaniards love the superlative. There is a *whipsnake*, of a beautiful green. The labarri snake, of a dirty brown, who kills you in a few minutes. Every lovely color under heaven is lavished upon the counachouchi, the most venomous of reptiles, and known by the name of the *bush-master*. Man and beast, says Mr. Waterton, fly before him, and allow him to pursue an undisputed path.

6. We consider the following description of the various sounds in these wild regions as very striking :

"He whose eye can distinguish the various beauties of uncultivated nature, and whose ear is not shut to the wild sounds in the woods, will be delighted in passing up the river Demerara. Every now and then the maam or tinamou sends forth one long and plaintive whistle from the depth of the forest and then stops; while the yelping of the toucan, and the shrill voice of the bird called pi-pi-yo, are heard during the interval. The campanero never fails to attract the attention of the passenger; at a distance of nearly three miles you may hear this snow-white bird tolling every four or five minutes, like the distant convent bell. From six to nine in the morning the forests resound with the mingled cries and strains of the feathered race; after this they gradually die away. From eleven to three all Nature is hushed as in a midnight silence, and scarce a note is heard, saving that of the campanero and the pi-pi-yo; it is then that, oppressed by the solar heat, the birds retire to the thickest shade, and wait for the refreshing cool of evening.

7. "At sundown the vampires, bats, and goat-suckers dart from their lonely retreat, and skim along the trees on the river's bank. The different kinds of frogs almost stun the ear with their hoarse and hollow-sounding croaking, while the owls and goat-suckers lament and mourn all night long.

8. "About two hours before daybreak you will hear the red monkey moaning as though in deep distress; the houtou, a solitary bird, and only found in the thickest recesses of the forest, distinctly articulates 'houtou, houtou,' in a low and plaintive tone, an hour before sunrise; the maam whistles about the same hour; the hannaquoi, pataca, and maroudi announce his near approach to the eastern horizon, and the parrots and paroquets confirm his arrival there."

9. In regard to outfit our author gives the following advice to travelers who are about to enter the forests of Guiana:

"Leave behind you your high-seasoned dishes, your wines, and your delicacies; carry nothing but what is necessary for your own comfort, and the object in view, and depend upon the skill of an Indian, or your own, for fish and game. A sheet, about twelve feet long, ten wide, painted, and with loop-holes on each side, will be of great service; in a few minutes you can suspend it betwixt two trees in the shape of a roof. Under this, in your hammock, you may defy the pelting shower, and sleep heedless of the dews of night. A hat, a shirt, and a light pair of trousers, will be all the raiment you require. Custom will soon teach you to tread lightly and barefoot on the little inequalities of the ground, and show you how to pass on, unwounded, amid the mantling briers."

10. Snakes are certainly an annoyance; but the snake, though high-spirited, is not quarrelsome; he considers his fangs to be given for defense, and not for annoyance, and never inflicts a wound but to defend existence. If you tread upon him, he puts you to death for your clumsiness, merely because he does not understand what your clumsiness means; and certainly a snake, who feels fourteen or fifteen stone stamping upon his tail, has little time for reflection, and may be allowed to be poisonous and peevish. American tigers generally run away—from which several respectable gentlemen in Parliament inferred, in the American war, that American soldiers would run away also!

11. The description of the birds is very animated and interesting; but how far does the gentle reader imagine the campanero may be heard, whose size is that of a jay? Perhaps three hundred yards. Poor innocent, ignorant reader! unconscious of what Nature has done in the forests of Cayenne, and measuring the force of tropical intonation

by the sounds of a Scotch duck! The campanero may be heard three miles! this single little bird being more powerful than the belfry of a cathedral, ringing for a new dean —just appointed on account of shabby politics, small understanding, and good family!

12. "The fifth species is the celebrated campanero of the Spaniards, called dara by the Indians, and bell-bird by the English. He is about the size of the jay. His plumage is white as snow. On his forehead rises a spiral tube nearly three inches long. It is jet black, dotted all over with small white feathers. It has a communication with the palate, and, when filled with air, looks like a spire; when empty, it becomes pendulous. His note is loud and clear, like the sound of a bell, and may be heard at a distance of three miles. In the midst of these extensive wilds, generally on the dried top of an aged mora, almost out of gun-reach, you will see the campanero. No sound or song from any of the winged inhabitants of the forest, not even the clearly pronounced 'Whip-poor-Will' from the goat-sucker, causes such astonishment as the toll of the campanero.

"With many of the feathered race he pays the common tribute of a morning and an evening song; and even when the meridian sun has shut in silence the mouths of almost the whole of animated nature, the campanero still cheers the forest. You hear his toll, and then a pause for a minute, then another toll, and then a pause again, and then a toll, and again a pause."

13. It is impossible to contradict a gentleman who has been in the forests of Cayenne; but we are determined, as soon as a campanero is brought to England, to make him toll in a public place, and have the distance measured. The toucan has an enormous bill, makes a noise like a puppy dog, and lays his eggs in hollow trees. How astonishing are the freaks and fancies of Nature! To what purpose, we say, is a bird placed in the woods of Cayenne,

with a bill a yard long, making a noise like a puppy dog, and laying eggs in hollow trees? The toucans, to be sure, might retort, To what purpose were gentlemen in Bond Street created? To what purpose were certain foolish, prating members of Parliament created?—pestering the House of Commons with their ignorance and folly, and impeding the business of the country? There is no end of such questions. So we will not enter into the metaphysics of the toucan.

14. "The cassique, in size, is larger than the starling; he courts the society of man, but disdains to live by his labors. When Nature calls for support, he repairs to the neighboring forest, and there partakes of the store of fruits and seeds, which she has produced in abundance for her aërial tribes. When his repast is over, he returns to man, and pays the little tribute which he owes him for his protection; he takes his station on a tree close to his house; and there, for hours together, pours forth a succession of imitative notes. His own song is sweet, but very short. If a toucan be yelping in the neighborhood, he drops it, and imitates him. Then he will amuse his protector with the cries of the different species of the woodpecker; and when the sheep bleat, he will distinctly answer them. Then comes his own song again, and if a puppy dog or a guinea fowl interrupt him, he takes them off admirably, and, by his different gestures during the time, you would conclude that he enjoys the sport."

15. Mr. Waterton gives an interesting account of the sloth, an animal of which he appears to be fond, and whose habits he has studied with peculiar attention.

"Some years ago I kept a sloth in my room for several months. I often took him out of the house and placed him upon the ground, in order to have an opportunity of observing his motions. If the ground were rough, he would pull himself forward, by means of his fore legs, at

a pretty good pace ; and he invariably shaped his course toward the nearest tree. But if I put him upon a smooth and well-trodden part of the road, he appeared to be in trouble and distress ; his favorite abode was the back of a chair ; and, after getting all his legs in a line upon the topmost part of it, he would hang there for hours together, and often, with a low and inward cry, would seem to invite me to take notice of him."

16. The sloth, in its wild state, spends its life in trees, and never leaves them but from force or accident. The eagle to the sky, the mole to the ground, the sloth to the tree ; but, what is most extraordinary, he lives not *upon* the branches, but *under* them. He moves suspended, rests suspended, sleeps suspended, and passes his life in suspense—like a young clergyman distantly related to a bishop. Strings of ants may be observed, says our good traveler, a mile long, each carrying in its mouth a green leaf the size of a sixpence ! he does not say whether this is a loyal procession, like Oak-apple Day, or for what purpose these leaves are carried ; but it appears, while they are carrying the leaves, that three sorts of ant-bears are busy in eating them.

17. Insects are the curse of tropical climates. The bête rouge lays the foundation of a tremendous ulcer. In a moment you are covered with ticks. Chigoes bury themselves in your flesh, and hatch a colony of young chigoes in a few hours. They will not live together, but every chigoe sets up a separate ulcer, and has his own private portion of pus. Flies get entry into your mouth, into your eyes, into your nose ; you eat flies, drink flies, and breathe flies. Lizards, cockroaches, and snakes get into the bed ; ants eat up the books ; scorpions sting you on the foot. Everything bites, stings, or bruises ; every second of your existence you are wounded by some piece of animal life that nobody has ever seen before, except Swammerdam and

Meriam. An insect with eleven legs is swimming in your tea-cup, a nondescript with nine wings is struggling in the small beer, or a caterpillar with several dozen eyes in his belly is hastening over the bread and butter! All Nature is alive, and seems to be gathering all her entomological hosts to eat you up, as you are standing, out of your coat, waistcoat, and breeches. Such are the tropics. All this reconciles us to our dews, fogs, vapor, and drizzle—to our apothecaries rushing about with gargles and tinctures—to our old, British, constitutional coughs, sore throats, and swelled faces.

RURAL SCENES IN ENGLAND.

1. The chief enjoyment of my several visits to Leamington lay in rural walks about the neighborhood, and in jaunts to places of note and interest, which are particularly abundant in that region. The high-roads are made pleasant to the traveler by a border of trees, and often afford him the hospitality of a wayside bench beneath a comfortable shade. But a fresher delight is to be found in the foot-paths, which go wandering away from style to style, along hedges, and across broad fields, and through wooded parks, leading you to little hamlets of thatched cottages, ancient, solitary farm-houses, picturesque old mills, streamlets, pools, and all those quiet, secret, unexpected, yet strangely familiar features of English scenery that Tennyson shows us in his idyls and eclogues.

2. These by-paths admit the wayfarer into the very heart of rural life, and yet do not burden him with a sense of intrusiveness. He has a right to go whithersoever they lead him; for, with all their shaded privacy, they are as much the property of the public as the dusty high-road itself,

An English Homestead.

and even by an older tenure. Their antiquity probably exceeds that of the Roman ways; the footsteps of the aboriginal Britons first wore away the grass, and the natural flow of intercourse between village and village has kept the track bare ever since. An American farmer would plow across any such path, and obliterate it with his hills of potatoes and Indian corn; but here it is protected by law, and still more by the sacredness that inevitably springs up, in this soil, along the well-defined footprints of centuries. Old associations are sure to be fragrant herbs in English nostrils: we pull them up as weeds.

3. I remember such a path, the access to which is from Lovers' Grove, a range of tall old oaks and elms on a high hill-top, whence there is a view of Warwick Castle, and a wide extent of landscape, beautiful, though bedimmed with English mist. This particular foot-path, however, is not a remarkably good specimen of its kind, since it leads into no hollows and seclusions, and soon terminates in a high-road. It connects Leamington by a short cut with the small neighboring village of Lillington, a place which impresses an American observer with its many points of contrast to the rural aspects of his own country. The village consists chiefly of one row of contiguous dwellings, separated only by party-walls, but ill-matched among themselves, being of different heights, and apparently of various ages, though all are of an antiquity which we should call venerable. Some of the windows are leaden-framed lattices, opening on hinges.

4. These houses are mostly built of gray stone; but others, in the same range, are of brick, and one or two are in a very old fashion—Elizabethan, or still older—having a ponderous framework of oak, painted black, and filled in with plastered stone or bricks. Judging by the patches of repair, the oak seems to be the more durable part of the structure. Some of the roofs are covered with earthen

tiles; others (more decayed and poverty-stricken) with thatch, out of which sprouts a luxurious vegetation of grass, house-leeks, and yellow flowers. What especially strikes an American is the lack of that insulated space, the intervening gardens, grass-plots, orchards, broad-spreading shade-trees, which occur between our own village houses. These English dwellings have no such separate surroundings; they all grow together, like the cells of a honeycomb.

5. Beyond the first row of houses, and hidden from it by a turn of the road, there was another row of small old cottages, stuck one against another, with their thatched roofs forming a single contiguity. These, I presume, were the habitations of the poorest order of rustic laborers; and the narrow precincts of each cottage, as well as the close neighborhood of the whole, gave the impression of a stifled, unhealthy atmosphere among the occupants. It seemed impossible that there should be a cleanly reserve, a proper self-respect among individuals, or a wholesome unfamiliarity between families, where human life was crowded and massed into such intimate communities as these. Nevertheless, not to look beyond the outside, I never saw a prettier rural scene than was presented by this range of contiguous huts. For in front of the whole row was a luxuriant and well-trimmed hawthorn hedge, and belonging to each cottage was a little square of garden-ground, separated from its neighbors by a line of the same verdant fence.

6. The gardens were chock-full, not of esculent vegetables, but of flowers, familiar ones, but very bright-colored, and shrubs of box, some of which were trimmed into artistic shapes; and I remember, before one door, a representation of Warwick Castle made of oyster-shells. The cottagers evidently loved the little nests in which they dwelt, did their best to make them beautiful, and succeeded more than tolerably well—so kindly did Nature help their

humble efforts with its verdure, flowers, moss, lichens, and the green things that grew out of the thatch. Through some of the open doorways we saw plump children rolling about on the stone floors, and their mothers, by no means very pretty, but as happy-looking as mothers generally are; and, while we gazed at these domestic matters, an old woman rushed wildly out of one of the gates, upholding a shovel, on which she clanged and clattered with a key. At first we fancied that she intended an onslaught against ourselves, but soon discovered that a more dangerous enemy was abroad; for the old lady's bees had swarmed, and the air was full of them, whizzing by our heads like bullets.

7. Not far from these two rows of houses and cottages a green lane, overshadowed with trees, turned aside from the main road, and tended toward a square, gray tower, the battlements of which were just high enough to be visible above the foliage. Wending our way thitherward, we found the very picture and ideal of a country church and churchyard. The tower seemed to be of Norman architecture, low, massive, and crowned with battlements. The body of the church was of very modest dimensions, and the eaves so low that I could touch them with my walking-stick. We looked into the windows and beheld the dim and quiet interior, a narrow space, but venerable with the consecration of many centuries, and keeping its sanctity as entire and inviolate as that of a vast cathedral. The nave was divided from the side aisles of the church by pointed arches resting on very sturdy pillars; it was good to see how solemnly they held themselves to their age-long task of supporting that lowly roof. There was a small organ, suited in size to the vaulted hollow, which it weekly filled with religious sound.

8. On the opposite wall of the church, between two windows, was a mural tablet of white marble, with an inscription in black letters—the only such memorial that I

could discern, although many dead people doubtless lay beneath the floor, and had paved it with their ancient tombstones, as is customary in old English churches. There were no modern painted windows, flaring with raw colors, nor other gorgeous adornments, such as the present taste for mediæval restoration often patches upon the decorous simplicity of the gray village church. It is probably the worshiping-place of no more distinguished a congregation than the farmers and peasantry who inhabit the houses and cottages which I have just described. Had the lord of the manor been one of the parishioners, there would have been an eminent pew near the chancel, walled high about, curtained, and softly cushioned, warmed by a fire-place of its own, and distinguished by hereditary tablets and escutcheons on the inclosed stone pillar.

9. A well-trodden path led across the churchyard, and, the gate being on the latch, we entered, and walked round among the graves and monuments. The latter were chiefly head-stones, none of which were very old, so far as was discoverable by the dates; some, indeed, in so ancient a cemetery, were disagreeably new, with inscriptions, glittering like sunshine, in gold letters. The ground must have been dug over and over again, innumerable times, until the soil is made up of what was once human clay, out of which have sprung successive crops of gravestones, that flourish their allotted time, and disappear, like the weeds and flowers in their briefer period.

10. The English climate is very unfavorable to the endurance of memorials in the open air. Twenty years of it suffice to give as much antiquity of aspect, whether to tombstone or edifice, as a hundred years of our own drier atmosphere — so soon do the drizzly rains and constant moisture corrode the surface of marble or freestone. Sculptured edges lose their sharpness in a year or two; yellow lichens overspread a beloved name, and obliterate it while

it is yet fresh upon some survivor's heart. Time gnaws an English gravestone with wonderful appetite ; and, when the inscription is quite illegible, the sexton takes the useless slab away, and perhaps makes a hearthstone of it, and digs up the unripe bones which it ineffectually tried to memorialize, and gives the bed to another sleeper.

11. And yet this same ungenial climate, hostile as it generally is to the long remembrance of departed people, has sometimes a lovely way of dealing with the records on certain monuments that lie horizontally in the open air. The rain falls into the deep incisions of the letters, and has scarcely time to be dried away before another shower sprinkles the flat stone again and replenishes those little reservoirs. The unseen, mysterious seeds of mosses find their way into the lettered furrows, and are made to germinate by the continual moisture and watery sunshine of the English sky ; and by and by, in a year, or two years, or many years, behold the complete inscription—

Here Lyeth the Body,

and all the rest of the tender falsehood—beautifully embossed in raised letters of living green, a bas-relief of velvet moss on the marble slab ! It becomes more legible, under the skyey influences, after the world has forgotten the deceased, than when it was fresh from the stone-cutter's hands. It outlives the grief of friends. I first saw an example of this in Bebbington churchyard, in Cheshire, and thought that Nature must needs have had a special tenderness for the person—no noted man, however, in the world's history—so long ago laid beneath that stone, since she took such wonderful pains to "keep his memory green." Perhaps the proverbial phrase just quoted may have had its origin in the natural phenomenon here described.

12. While we rested ourselves on a horizontal monu-

ment, which was elevated just high enough to be a convenient seat, I observed that one of the gravestones lay very close to the church—so close that the droppings of the eaves would fall upon it. It seemed as if the inmate of that grave had desired to creep under the church-wall. On closer inspection, we found an almost illegible epitaph on the stone, and with difficulty made out this forlorn verse :

> " Poorly lived,
> And poorly died,
> Poorly buried,
> And no one cried."

It would be hard to compress the story of a cold and luckless life, death, and burial into fewer words, or more impressive ones ; at least, we found them impressive, perhaps because we had to recreate the inscription by scraping away the lichens from the faintly traced letters.

13. The grave was on the shady and damp side of the church, endwise toward it, the head-stone being within about three feet of the foundation-wall ; so that, unless the poor man was a dwarf, he must have been doubled up to fit him into his final resting-place. No wonder that his epitaph murmured against so poor a burial as this ! His name, as well as I could make it out, was Treeo—John Treeo, I think—and he died in 1810, at the age of seventy-four. The gravestone is so overgrown with grass and weeds, so covered with unsightly lichens, and so crumbly with time and foul weather, that it is questionable whether anybody will ever be at the trouble of deciphering it again. But there is a quaint and sad kind of enjoyment in defeating (to such slight degree as my pen may do it) the probabilities of oblivion for poor John Treeo, and asking a little sympathy for him, half a century after his death, and making him better and more widely known, at least, than any

other slumberer in Lillington churchyard, he having been, as appearances go, the outcast of them all.

14. You find similar old churches and villages in all the neighboring country, at the distance of every two or three miles; and I describe them, not as being rare, but because they are so common and characteristic. The village of Whitnash, within twenty minutes' walk of Leamington, looks as secluded, as rural, and as little disturbed by the fashions of to-day as if Dr. Jephson had never developed all those Parades and Crescents out of his magic well. I used to wonder whether the inhabitants had ever yet heard of railways, or, at their slow rate of progress, had even reached the epoch of stage-coaches.

15. As you approach the village, while it is yet unseen, you observe a tall, overshadowing canopy of elm-tree tops, beneath which you almost hesitate to follow the public road, on account of the remoteness that seems to exist between the precincts of this old-world community and the thronged modern street out of which you have so recently emerged. Venturing onward, however, you soon find yourself in the heart of Whitnash, and see an irregular ring of ancient rustic dwellings surrounding the village green, on one side of which stands the church, with its square Norman tower and battlements, while close adjoining is the vicarage, made picturesque by peaks and gables. At first glimpse, none of the houses appear to be less than two or three centuries old, and they are of the ancient, wooden-framed fashion, with thatched roofs, which give them the air of birds' nests, thereby assimilating them closely to the simplicity of Nature.

16. The church-tower is mossy and much gnawed by time; it has narrow loopholes up and down its front and sides, and an arched window over the low portal, set with small panes of glass, cracked, dim, and irregular, through which a by-gone age is peeping out into the daylight. Some

of those old, grotesque faces, called gargoyles, are seen on the projections of the architecture. The churchyard is very small, and is encompassed by a gray stone fence that looks as ancient as the church itself. In front of the tower, on the village green, is a yew-tree of incalculable age, with a vast circumference of trunk, but a very scanty head of foliage, though its boughs still keep some of the vitality which perhaps was in its early prime when the Saxon invaders founded Whitnash. A thousand years is no extraordinary antiquity in the life-time of a yew.

17. We were pleasantly startled, however, by discovering an exuberance of more youthful life than we had thought possible in so old a tree; for the faces of two children laughed at us out of an opening in the trunk, which had become hollow with long decay. On one side of the yew stood a framework of worm-eaten timber, the use and meaning of which puzzled me exceedingly, till I made it out to be the village stocks—a public institution that, in its day, had doubtless hampered many a pair of shank-bones now crumbling in the adjacent churchyard. It is not to be supposed, however, that this old-fashioned mode of punishment is still in vogue among the good people of Whitnash. The vicar of the parish has antiquarian propensities, and had probably dragged the stocks out of some dusty hiding-place and set them up on their former site as a curiosity.

18. I disquiet myself in vain with the effort to hit upon some characteristic feature, or assemblage of features, that shall convey to the reader the influence of hoar antiquity lingering into the present daylight, as I so often felt it in these old English scenes. It is only an American who can feel it; and even he begins to find himself growing insensible to its effect after a long residence in England. But while you are still new in the old country, it thrills you with strange emotion to think that this little church of

Whitnash, humble as it seems, stood for ages under the Catholic faith, and has not materially changed since Wycliffe's days, and that it looked as gray as now in Bloody Mary's time, and that Cromwell's troopers broke off the stone noses of those same gargoyles that are now grinning in your face.

19. So, too, with the immemorial yew-tree; you see its great roots grasping hold of the earth like gigantic claws, clinging so sturdily that no effort of time can wrench them away; and, there being life in the old tree, you feel all the more as if a contemporary witness were telling you of the things that have been. It has lived among men, and been a familiar object to them, and seen them brought to be christened and married and buried in the neighboring church and churchyard, through so many centuries, that it knows all about our race, so far as fifty generations of the Whitnash people can supply such knowledge.

20. And, after all, what a weary life it must have been for the old tree! Tedious beyond imagination! Such, I think, is the final impression on the mind of an American visitor, when his delight at finding something permanent begins to yield to his Western love of change, and he becomes sensible of the heavy air of a spot where the forefathers and foremothers have grown up together, intermarried, and died, through a long succession of lives, without any intermixture of new elements, till family features and character are all run in the same inevitable mold. Life is there fossilized in its greenest leaf. The man who died yesterday or ever so long ago walks the village street today, and chooses the same wife that he married a hundred years since, and must be buried again to-morrow under the same kindred dust that has already covered him half a score of times. The stone threshold of his cottage is worn away with his hob-nailed footsteps, shuffling over it from the reign of the first Plantagenet to that of Victoria.

21. Better than this is the lot of our restless countrymen, whose modern instinct bids them tend always toward "fresh woods and pastures new." Rather than such monotony of sluggish ages, loitering on a village green, toiling in hereditary fields, listening to the parson's drone lengthened through centuries in the gray Norman church, let us welcome whatever change may come — change of place, social customs, political institutions, modes of worship— trusting that, if all present things shall vanish, they will but make room for better systems, and for a higher type of man to clothe his life in them, and to fling them off in turn.

Nathaniel Hawthorne.

SUMMER AND WINTER LIFE IN LAPLAND.

1. The summer dress of the Laplander is well adapted to the climate of the mountains. My two men wore a gray blouse of coarse woolen stuff, reaching below the knee, open at the throat, showing an under-garment of the same material; tight-fitting leggings of reindeer leather, bound closely around the ankles by strips of cloth; shoes of the same material, but heavier, with turned-up pointed toes; a coarse woolen cap; a leather pouch on the back to contain food, and a belt on which to hang a knife. The female costume is the same as that of the men, except that the blouse is longer and closed at the neck.

2. Wherever the Laplander goes in summer, he takes with him a stout birch staff, about seven feet in length, which is used in climbing mountains and in crossing streams.

3. Our journey was through a broken and wild region. The bare rounded hills made a picture of desolation; the soil was covered with stones of different sizes and shapes

wrenched from the rocks by thousands of years of frost. Although in August, the very midsummer, snow-drifts were numerous, and sometimes formed arches over the streams. We plodded on, sometimes ascending the hills and sometimes on the margin of the streams. The walking at times was exceedingly tiresome on account of the soft snow, into which we sank to our knees, and of the wet and sandy soil, broken rocks, slabs, and bowlders. The scenery was grand beyond description. The peak of Sulitelma, 6,326 feet high, was sometimes in sight and sometimes hidden in a black mass of clouds; an immense glacier appeared in the distance, presenting a superb appearance, the ice being very blue, as rains had melted the snow over a large part of its surface. Rills were seen everywhere, and cascades formed by the melted snow poured down the hillsides. When resting, a fire was enjoyable, as the thermometer stood at 39°.

4. Toward night we reached the first Lapp encampment, inhabited by kin-people of our female traveling companion. As I looked around, a feeling of disgust crept over me; the tent at its base did not seem more than eight feet in diameter; in the center a fire made with juniper branches was blazing brightly, having been lighted on our account, for the people have to be economical in the use of wood. In the small space on one side of the tent—the other side, on the left of the door, having been cleared for us—lay huddled together, on reindeer skins wet with rain, three women, four children, two men, and four dogs. The dogs growled at us, but were soon silenced by a heavy blow of the fist, applied to the one which tried hardest to disturb the peace. The clothes of the men, women, and children were of reindeer skins, with the hair turned inside; the faces of the children looked as if they had never been washed, and those of the grown people could not have been touched by water for a fortnight; a large quantity of reindeer meat and other

kinds of food lay on the skins on which these people were to sleep.

5. Such was the picture of the first Lapp tent I saw, and I may add that it proved to be the worst.

6. These Lapps were very kind-hearted, and the woman who had been traveling with us was careful to provide for our comfort. A short time after our arrival, the kettle was on the fire, and she was grinding coffee, while the head of the family was busily engaged in cutting up reindeer meat and putting it into a brass pot hanging over the fire by a chain. When the meat was cooked, the father of the family gave to each his portion, but the choice bits were reserved for me and my two guides; we had no forks and no bread. The bones were thrown to the dogs, who watched all our movements with hungry eyes. At night, without removing our clothes, in the midst of the filth and bad odors, we lay down upon the damp skins and tried to sleep.

7. The next day we came to a larger tent, where we found three women and one man. The dresses of the women were of a thick blue woolen cloth, trimmed with red and yellow bands at the lower end of the skirt, with under-garments nicely embroidered at the openings. They also wore belts, which are considered one of the chief ornaments, and some of them are expensive. Only one had a belt ornamented with silver; the others were made of copper. These ornaments, about an inch wide, were fastened to the belt, and from it hung a little knife and a pair of scissors. Woolen leggings of a bluish color completed the costume. One of them wore new summer shoes made of dressed reindeer skins without heels; the others wore no shoes.

8. The women's faces had been washed, and their hair combed; their heads were covered with a rather graceful cap. I was surprised at the good looks of two of them; they had blue eyes, very small hands, and fair hair of a

somewhat reddish tinge; their complexions were rosy, and the skin remarkably white where it had been protected from the wind. The men's skins were quite red, having been tanned by exposure.

9. There was not the slightest appearance of shyness in these people; we were welcomed at once; coffee, already roasted, was ground, boiled, and clarified by a piece of dried fish skin, and served to me in a queer-shaped little silver cup which I admired very much; it was a family heir-loom, said to be about a hundred years old. The coffee was excellent.

10. I had hardly finished a second cup when a Laplander came in, followed by several dogs; he had just arrived with two hundred and seventy-three reindeer, which were around the tent, but the approach had been so quiet that we did not hear him. Some of these animals were eating moss, using their forefeet to detach it, while others were lying down; the males were of large size, with spreading horns, the females much smaller. Not one showed any inclination to move off, the whole herd being as still as the cows which come to the farm-yard to be milked; the bulls were generally quiet, though several of them were butting one another; I was told that their horns often become so entangled that the animals can not be separated, and have to be killed.

11. I watched the milking with great interest. Those which were to be milked were approached carefully, and a lasso was thrown gently over their horns and knotted over the muzzle, to prevent them from running away; but they made no effort to escape. The process of milking was peculiar. The woman held in one hand a wooden scoop, frequently pressing hard with the other, for the thick fluid seems to come with difficulty. I was surprised at the small yield, some not giving enough to fill a small coffee-cup, but it was very thick and rich, so much so that water had

to be added before drinking. The milk of the reindeer forms a very important item in the food of the Lapps, and possesses an amount of nutrition far greater than that of the milk of the cow. The butter made from it is not good, and the Lapps make but little butter, but cheese is made in large quantities.

12. The tent used by the Lapps is very portable, and is conveyed from place to place by the reindeer, in summer on their backs and in winter on sledges. Its frame is composed of poles fitting into each other, easily put together, and so strong and well knit that they can resist the heaviest storm; a cross-pole high up sustains an iron chain, at the end of which is a hook to hold kettles. Over the frame is drawn a kind of coarse cloth, made by themselves, no skins being ever used; it is composed of two pieces, and is made fast by strings and pins, and is well secured; the porous quality of the cloth permits a partial circulation of the air; a small door, made of canvas, is suspended at the top of the entrance. The woolen cloth is exceedingly durable, often lasting more than twenty years. In summer the tents are usually pitched near a spring or stream of water, where the dwarf-birch and juniper furnish fuel, and not far distant from good pasture.

13. In winter the Lapps are obliged to search for places where the snow is not more than four or five feet deep; otherwise the reindeer can not reach the moss beneath, which constitutes their food. One day, while traveling through an evergreen forest, I witnessed an interesting sight. A thousand reindeer of all sizes had just been turned loose. All except the younger ones were busy digging, first with one forefoot and then with the other; the holes gradually became larger and larger, and the bodies of the animals more hidden; they would not stop until they had reached the moss. On my way back from the encampment, another strange sight presented itself.

The reindeer were nowhere to be seen. As I approached the place of their pasturage, I discovered that all of them had dug holes so deep that I could see only their tails swaying to and fro. This was certainly a landscape I had never seen before.

14. The encampment was in a wood, and the tent was about twelve feet in diameter at its base. There was a blazing fire in the center, the smoke escaping by the aperture above. Two kettles filled with meat were boiling, for they were preparing for their evening meal. The tent was crowded, and I wondered how we would all be able to sleep comfortably. Outside, snow-shoes were lying on the ground or leaning against the trees; harnesses were hanging here and there, and quarters of frozen reindeer were suspended from the branches. A kind of rack had been built about six feet from the ground, where frozen meat was piled. There was also a store of smoked meat, buckets of frozen milk, and bladders of congealed milk or blood.

15. After the meat was cooked, the father divided it into portions for each member of the family. The fattest parts are considered the best, and these were set aside for us. Then we began our meal, using our fingers for forks. After a long chat, principally upon religious matters, and singing hymns in praise of God, they dressed themselves for the night by putting over their garments a long reindeer gown, almost a bag. No matter how severe the weather may be, one does not feel cold in such a garb.

16. Several skins were prepared as a mattress for us, and others were given for coverings. The fire went out, and we were in complete darkness. The air was perfectly still, and I could hear from time to time the booming sound of the cracking of the ice on the surrounding streams. The dogs awoke me several times trying to get under our coverings. When we awoke, my thermometer marked 37° below zero, and yet I had rested very comfortably. Im-

mediately after our awakening, one of the servant-girls was set to make bread without yeast, a small loaf, prepared specially in our honor, being baked in charcoal.

17. Lapps rarely remove their clothing during the winter, and change only with the change of seasons. When they go to church they often put the new dress over the old one. Of course, vermin swarm in their fur costumes; but, when they become unendurable, the custom is to expose the garments to the air when the temperature is 30° or 40° below zero, so that all noxious things are destroyed. In summer this remedy can not be applied; but the Laplanders who are more cleanly use woolen under-garments, which they can wash. Bathing is, of course, impracticable in winter, and is not extensively practiced even in summer.

18. The life of a Lapp is one of constant vigilance; young and old are continually on the lookout, and walk with their dogs around their herds. The wolf and the glutton are the greatest enemies of the reindeer, and the Lapps have to be on the constant hunt for those wary foes. Reindeer bulls often defend themselves with success against such enemies, but when a pack of wolves rushes into the midst of a herd, the latter are scattered in all directions, and then the owners have to go long distances to bring them together again, often losing great numbers. If the wolves are not hungry they will not dare to come near, but, if in want of food, they will attack a herd in spite of all precautions. Often the deer detect, by the sense of smell, the approach of their enemies, and move away. The Lapps then know what to expect, and with their dogs pursue the wolves, keeping the deer together at the same time.

Paul du Chaillu.

MOSLEM EMPIRE IN SPAIN.

1. As I sat watching the effect of the declining daylight upon the Alhambra, I was led into a consideration of the light, elegant, and voluptuous character prevalent throughout its internal architecture, and to contrast it with the grand, but gloomy, solemnity of the Gothic edifices reared by the Spanish conquerors. The very architecture thus bespeaks the opposite and irreconcilable natures of the two warlike people who so long battled here for the mastery of the peninsula. By degrees I fell into a course of musing upon the singular fortunes of the Arabian or Morisco Spaniards whose whole existence is as a tale that is told, and certainly forms one of the most anomalous yet splendid episodes in history. Potent and durable as was their dominion, we scarcely know how to call them. They were a nation without a legitimate country or name. A remote wave of the great Arabian inundation, they seemed to have all the impetus of the first rush of the torrent. Their career of conquest from the rock of Gibraltar to the cliffs of the Pyrenees was as rapid and brilliant as the Moslem victories of Syria and Egypt. Nay, had they not been checked on the plains of Tours, all France, all Europe, might have been overrun with the same facility as the empires of the East, and the crescent at this day have glittered on the fanes of Paris and London.

2. Repelled within the limits of the Pyrenees, the mixed hordes of Asia and Africa gave up the Moslem principle of conquest, and sought to establish in Spain peaceful and permanent dominion. As conquerors, their heroism was only equaled by their moderation; and in both, for a time, they excelled the nations with whom they contended. Severed from their native homes, they loved the land given them, as they supposed, by Allah, and strove to embellish

it with everything that could administer to the happiness of man. Laying the foundations of their power in a system of wise and equitable laws, diligently cultivating the arts and sciences, and promoting agriculture, manufactures, and commerce, they gradually formed an empire unrivaled for its prosperity by any of the empires of Christendom; and diligently drawing round them the graces and refinements which marked the Arabian empire in the East at the time of its greatest civilization, they diffused the light of Oriental knowledge through the western regions of benighted Europe.

3. The cities of Arabian Spain became the resort of Christian artisans, to instruct themselves in the useful arts. The universities of Toledo, Cordova, Seville, and Granada were sought by the pale student from other lands to acquaint himself with the sciences of the Arabs and the treasured lore of antiquity; the lovers of the gay science resorted to Cordova and Granada to imbibe the poetry and music of the East; and the steel-clad warriors of the North hastened thither to accomplish themselves in the graceful and courteous usages of chivalry.

4. If the Moslem monuments in Spain, if the Mosque of Cordova, the Alcazar of Seville, and the Alhambra of Granada still bear inscriptions fondly boasting of the power and permanency of their dominion, can the boast be derided as arrogant and vain? Generation after generation, century after century, passed away, and still they held possession of the land. A period elapsed, longer than that which has passed since England was subjugated by the Norman Conqueror, and the descendants of Musa and Tavio might as little anticipate being driven into exile across the same straits, traversed by their triumphant ancestors, as the descendants of Rollo and William and their veteran peers may dream of being driven back to the shores of Normandy.

5. With all this, however, the Moslem empire in Spain

was but a brilliant exotic, that took no permanent root in the soil it embellished. Severed from all their neighbors in the West by impassable barriers of faith and manners, and separated by seas and deserts from their kindred of the East, the Morisco Spaniards were an isolated people. Their whole existence was a prolonged though gallant and chivalric struggle for a foothold in a usurped land.

6. They were the outposts and frontiers of Islamism. The peninsula was the great battle-ground where the Gothic conquerors of the North and the Moslem conquerors of the East met and strove for mastery, and the fiery courage of the Arab was at length subdued by the obstinate and persevering valor of the Goth.

7. Never was the annihilation of a people more complete than that of the Morisco Spaniards. Where are they? Ask the shores of Barbary and its desert places. The exiled remnant of their once-powerful empire disappeared among the barbarisms of Africa, and ceased to be a nation. They have not even left a distinct name behind them, though for nearly eight centuries they were a distinct people. The home of their adoption and of their occupation for ages refuses to acknowledge them, except as invaders and usurpers. A few broken monuments are all that remain to bear witness to their power and dominion, as solitary rocks, left far in the interior, bear testimony to the extent of some vast inundation. Such is the Alhambra. A Moslem pile in the midst of a Christian land; an Oriental palace amid the Gothic edifices of the West; an elegant memento of a brave, intelligent, and graceful people, who conquered, ruled, flourished, and passed away.

Washington Irving.

APPENDIX.

As a reader, this book may be used by the advanced classes as supplementary to the Fourth and Fifth Readers. While the articles selected treat exclusively of geographical topics, they can all be classed as standard literature, and they present as great variety in style as the lessons found in ordinary reading books. The subject-matter is all concrete, and such as is calculated to excite interest and awaken thought in a much greater degree than the more purely ideal and abstract articles which are usually selected for reading.

Its chief use, however, will be in connection with the study of geography. When any topic in the geography is studied, the lessons in the reader upon the same topic should be read. The dry statistics and outline descriptions are thus supplemented by detail and story, so that vivid images take the place of vague notions in the mind.

For example, when the pupils are studying the general topic of mountains, they should read the articles which describe special mountain ranges and glaciers; and when they are studying the subject of volcanoes and earthquakes, they should read the articles giving the details of special volcanic eruptions, and the destruction occasioned by notable earthquakes. In this way, both the lesson in geography and the exercise in reading are invested with

additional interest, the most vivid and permanent ideas, however, being obtained from the reading.

The method by which the best results will be obtained is somewhat as follows :

The subject of each lesson should be carefully studied by the pupil before it is read in the class. Each new word should be looked out both for meaning and for pronunciation, using the dictionary and the special vocabulary at the end of the volume. This study will give the pupil confidence, and will prevent that hesitation which is a fruitful source of bad reading.

In class, the lesson should be read in natural and pleasant tones, and in such a manner as to convey to the listener the exact meaning of the author. Excellence in delivery will be better secured by attention to the thoughts expressed than by drill in the manner of expression.

After the lesson is read, the substance should be related by the pupils in their own language, testing their understanding and memory, and cultivating their powers of speech. The teacher should supplement matter, as given by the pupils, by questions, designed to make corrections, if any are needed, and to supply omissions. The article read should also be compared with the corresponding lesson found in the geography.

The lesson read may also be assigned as a composition exercise, the pupils writing from memory what they have read or heard read. When this last exercise is first tried, the pupils will probably make more effort to reproduce the language than the thought. The teacher, however, will discourage this, and, by careful questioning, will turn the attention more and more to the thought ; and the pupils will finally acquire the ability of writing the substance of the lesson in well-considered discourse without using the phraseology of the book.

The book from which the article is selected, and the

author, may next be discussed, for the purpose of gaining more knowledge upon these and kindred subjects, and of discovering the secret of felicitous and forcible expression.

The highest welfare of the school demands a school library; and, where this is lacking, the waste of time and opportunity each year is more than would be the cost of the necessary books. Without the library, however, the teacher can call the attention of the pupils to books which contain valuable and interesting matter, so that when opportunity occurs they may be secured and read. In these days of cheap books, any pupil having a great desire to read any work will find means of gratifying it.

The following is nearly a complete list of the books from which extracts have been made in compiling this work. A few of the articles were found copied in papers without credit, and their origin could not be ascertained. Many other selections were made, but omitted for want of room.

We would here express our thanks to the authors and publishers of copyright books who have given us permission to use the matter selected.

Abbott, Jacob:
"Travels in Syria and Palestine."

Abbott, J. S. C.:
"Life of Napoleon Bonaparte."

Atlantic Monthly.

Barlow, Lieutenant:
"Reports of United States Exploring Expeditions."

G. B. Belzoni:
"Narrative of the Operations and Recent Discoveries within the Pyramids, Temples, and Tombs in Egypt and Nubia."

Bird, Isabella L.

Brassey, Mrs.:
"Around the World in the Yacht Sunbeam."

Browne, J. Ross:
"The Land of Thor."

Child, L. Maria:
"Miscellanies."

Coleridge, S. T.:
"Poems."

Curtis, George W.:
"Nile Notes of a Howadji."
"The Howadji in Syria."

Du Chaillu, Paul:
"Stories of the Gorilla."
"The Land of the Midnight Sun."

Eliot, Charles W.:
"Letters from Abroad."

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Goldsmith, Oliver:
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Greeley, Horace:
"Overland Journey to California."

Guyot, Arnold:
"Earth and Man."

Harper's Magazine.

Hawthorne:
"Our Old Home."

Hayes, Dr. I. I.:
"An Arctic Boat Journey."

H. H. (Mrs. Helen Hunt Jackson):
"Bits of Travel at Home."

Humboldt, Alexander von:
"Travels in the Equatorial Regions of America."

Irving, Washington:
"The Alhambra."

Kinglake, Alexander W.:
"Eothen; or, Travels in the East."

LIVINGSTON, DAVID:
"Narrative of an Expedition to the Zambezi and its Tributaries."

LONGFELLOW, H. W.:
Introduction to "The Children of the Lord's Supper."

LYELL, Sir CHARLES:
"Travels in the United States."

MOORE, THOMAS:
"Poems."

NORTH BRITISH REVIEW.

PHILLIPS, JOHN:
"Vesuvius."

PRESCOTT, W. H.:
"Conquest of Peru."

RICHARDSON, A. D.:
"Beyond the Mississippi."

SEWARD, W. H.:
"Travels Around the World."

SHELLEY, P. B.:
"Poems."

SILLIMAN, BENJAMIN:
"Visit to Europe."

SMITH, SYDNEY:
"Essays and Reviews."

SOMERVILLE, MARY:
"Physical Geography."

SQUIER, E. G.:
"Peru: Incidents of Travel and Exploration in the Land of the Incas."

STANLEY, EDWIN J.:
"Rambles in Wonderland."

STEPHENS, JOHN L.:
"Travels in Egypt and the Holy Land."

STROTHER, D. H.:
"Virginia Illustrated."

TAYLOR, BAYARD:

"The Land of the Saracen."

"A Visit to India, China, and Japan."

"Journey to Central Africa."

"Northern Travel: Summer and Winter Pictures of Sweden, Denmark, and Lapland."

TEMPLE BAR.

TYNDALL, Professor JOHN:

"Hours of Exercise in the Alps."

WILLIS, NATHANIEL P.:

"Pencilings by the Way."

YOUMANS, E. L.:

"Hand-Book of Household Science."

PRONOUNCING VOCABULARY.

Abencerra'ges.
Aclahuasas (ä-klä-wä'-säs).
Ædile Glau'cus (ē'-dīle).
Agassiz (ăg'-as-e).
Aletsch (ä'-letsh).
Alpnach (älp'-näk).
Altai (äl-tī').
Arve (ärv).
Arveiron (är-vā'-rŏng).
Asyoot (ä-se-oot').
Baiæ (bā'-ye).
Bashikonay (bä-she-ko-nī').
Bedouin (bĕd'-oo-een).
Brah'min.
Buddha (bood'-ä).
Buenos Ayres (bū'-nos airs; Spanish, bwä'-noce ī'-ress).
Cairo (kī'-ro).
Cala'bria (Italian, kä-lä'-bre-a).
Campagna (käm-pän'-ya).
Caracas (kä-rä'-käs).
Cata'nia (Italian, kä-tä'-ne-ä).
Chamouni (shä-moo-nē').
Charybdis (ka-rĭb'-dis).
Chucaripe (choo-kä-rē'-pā).
Cleopat'ra.
Copacabana (ko-pä-kä-bä'-na).
Dalecarlian (dal e-kär'-le-an).
Den'dereh.
Diomede (dī-o-mē'-de).
Esquimaux (ĕs'-ke-mo).
Euphe'mia (Italian, Eufemia, ä-oo-fā'-me-a).
Gauchos (gow'-choce).
Gethsemane (gheth-sĕm'-a-ne).
Getroz (zhĕh-trō').
Geysers (ghī'-zerz).
Glacier de Bois (glăs'-e-ā dĕh bwä).
Glacier de Boissons (bwä-sōng').
Harmattan'.
Haroun-al-Raschid (hä-roon'-äl-rä-sheed').
Hercula'neum.
Himala'ya (correctly, him-ä'-lä-yä).
Howadji (ho-wäd'-je).
Kanagawa (kä-na-gä'-wä).
Kho'dabund.
Kilauea (ke-low-ä'-ä).
Kilimandjaro (kē-lē-män-jä-rō').
La Chingana (lä cheen-gä'-nä).
La Guayra (lä gwī'-rä).
Laugarfjal (low'-gärf yäl).
Le Chabli (lĕh shăb-lē').
Lindarax'a.
Llanos (lyä'-noce).
Lopiz'ium.
Machiavelli (mä-ke-a-vēl'-le).
Maelström (māil'-strum).
Mariposa (mä-re-pō'-sä).
Martigny (mär-teen'-ye).
Mer de Glace (māir dĕh glăs).
Miséricorde (me-zā-re-kord').
Mon'aco.
Montagne Vert (mōng-tän' vāir).
Monte Nuovo (mŏn'-tā noo-ō'-vo).

Mont Mauvoisin (mōng mō-vwä-zăng′).
Mont Pleuveur (plŭh-vŭhr′).
Mosi-oa-tunya (mō′-ze-o-ä-toon′-yä).
Mos′köe.
Névé (nā-vā′). The upper part of a glacier.
Padre Marchi (pä′-drā mär′-ke).
Pisa (pē′-zä).
Pompeii (pŏm-pā′-ye).
Pomponia′nus.
Pozzuoli (pŏt-soo-ō′-le).
Reykiavik (rī′-ke-ä-vik).
Rochetta (ro-kĕt′-tä).
Rosenthal (rō′-zen-täl).
Satsupo′ra.
Sherôvi (shā′-ro-ve).
Solfatara (sōle-fä-tä′-rä).
Stabiæ (stăb′-e-e).
Strokhr (strō′-ker).
Stromboli (strŏm′-bo-le).
St. Ber′nard (French, săng bāir-när′).
St. Branchier (săng brăng′-she-ā).
Suti-coya (soo′-te-kō′-yä).
Taj Mahal′.
Taormina (tä-or-mē′-nä).
Terramo′to.
Titicaca (tē-tē-kä′-kä).
Tropea (tro-pā′-ä).
Turkistan′.
Tyrol (tĭr′-ul; German, te-rōle′).
Tyrrhene (tur-reen′).
Vaerōe (vā′-rŭh-ĕh).
Vaishya (vīsh′-yä).
Val de Bagnes (väl dĕh bän).
Vivarrambla (ve-vär-räm′-blä).
Wady-el-Seib (wä′-de-el-sä-eeb′).
Weisshorn (vīce′-horn).
Wieliczka (ve-lĭtch′-kä).
Yosemite (yo-sĕm′-e-tä).
Yupanqui (yoo-pän′-ke).
Zambesi (zäm-bä′-ze).

THE END.